

The **Communicator**

A Publication Of The Surrey Amateur Radio Club



**March
2018**

SARC

March 2018



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The **Communicator** is a publication of the Surrey Amateur Radio Club. It appears monthly, except July and August, for area Amateur Radio operators, to enhance the exchange of information and to promote local ham radio activity.

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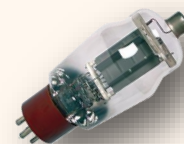
Regular readers who are not SARC members are invited to contribute a \$5 annual [donation](#) towards our Field Day fund.

SARC maintains a website at www.ve7sar.net and a Digital Communicator at ve7sar.blogspot.ca that includes recent news, past issues of The Communicator, club history, photos, videos and other information.

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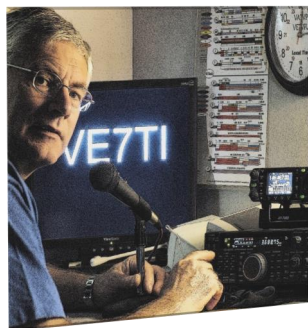


On The March Cover...

The new iCom radio has finally arrived! Several members of the OTC Committee pose with our newly acquired iCom-7610 at the Surrey Amateur Radio Operations and Training Centre HF room. You will find an extensive analysis and evaluation of the IC-7610 starting on page 15.

Now where is that Flex 6700?





QRM

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...from the Editor's Shack

*Do you have a photo or bit of club news to share?
An Interesting link?*

*Something to sell or something you are looking for?
eMail it to [communicator @ ve7sar.net](mailto:communicator@ve7sar.net) for inclusion in this publication.*

A special SARC general meeting coming this month. In the February issue we featured low earth orbit (LEO) Amateur Radio satellites and the ease they can currently be worked with the equipment that most hams have at hand. At the time of writing, there are 4 satellites that can be worked with, at minimum, a dual-band handheld radio and antenna.



Hopefully this has prompted some of our readers to give this a try but, if you're still skeptical, we have a featured speaker at the March General Meeting that may give you the incentive. ARRL Instructor and Legacy Circle Club member Clint Bradford, K6LCS Clint resides in Jurupa Valley, California, with his wife, Karen, a couple of cats, and a rescued lab, Freja.

Clint has been a licensed amateur radio operator since 1994, and involved in the commercial side of the radio industry, too. Clint has given his "How to Work the Amateur Satellites With Your HT" presentation more than 80 times the past few years to clubs and hamfests not only in Southern California, but also to clubs

across North America via EchoLink and Skype conferences, a mode we will use for the SARC meeting.

I have personally been at two of Clint's presentations in Palm Springs. He is an entertaining speaker and you will enjoy his tutorial on this interesting facet of our hobby. We expect a good turnout as an invitation has been extended beyond our membership. For this reason the March meeting will be held at the LDS Church Hall at 6270 126 St. Surrey

Attendees will be shown EVERYTHING needed to work the FM voice ham satellites - with a re-occurring theme of, "Most hams already have most of the necessary equipment..." You can download a four-page tutorial beforehand at: <http://www.work-sat.com> ...and Clint welcomes pre-presentation questions. Call him at 909-999-SATS (909-999-7287), or send email to k6lcs@ham-sat.info

In this issue we have a range of articles on various topics and some interesting news from SEPAR. As always, we appreciate your feedback. Sent it to communicator@ve7sar.net

~ John VE7TI
Communicator Editor

On the Web

ve7sar.net

Between newsletters, watch your e-mail for news, announcements of Amateur Radio events, monthly meetings and training opportunities.

Click the links below to follow our presence on the web:

SARC Blog
ve7sar.blogspot.ca

Twitter
[@ve7sar](https://twitter.com/ve7sar)

FaceBook
[SurreyAmateurRadio](https://www.facebook.com/SurreyAmateurRadio)

Our YouTube Channel
[SurreyARC](https://www.youtube.com/SurreyARC)

SARC Photo Albums
[Web Albums](#)

or
tinyurl.com/SARCphoto

"Alexa, What Does 73 Mean?" "73 Means 3 More Than 70"—Amazon Alexa

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The Rest Of The Story...

Gerben A. Menting PG5M

The Dramatic Story Of Spratly

Spratly has my special interest as I still remember very well the tragic attempt by four German operators who wanted to activate Spratly from Aboyna Cay in 1983. I followed the voyage of the Germans when on their way to their destination in the South China Sea. There were daily skeds with operators around the world but also with US stations at a military base in the Philippines. It was a shocking moment when we learned that they had been fired at and the boat caught fire. Since that moment there was no communication anymore with the team...

In June 2017 I wrote about disputed areas and the impact for amateur radio. The most disputed area with great impact on many countries and even with worldwide concern is the South China Sea. Most amateurs will immediately think about the Spratly Islands as this is a DXCC entity that can be activated under call signs from different countries. The South China Sea is surrounded by the following countries China, Vietnam, Indonesia, Malaysia, Brunei,

Philippines and Taiwan and each of them claiming part of the area.

According to the United Nations Convention on the Law of the Sea, any country can claim a 200-nautical mile Exclusive Economic Zone (EEZ) around every island that it controls, usually splitting the differences with the EEZs of other countries that have territories, insular or otherwise, within those limits. It is not so difficult to imagine that having, or claiming some out lying island will increase the EEZ with all the related benefits (oil and minerals). So that is why there are so many claims on islands or even on dots in the South China Sea that can hardly be called an island. To strengthen the claims, old documents and charts are referred to in recent history, small coral rocks of just a few square meters are now converted in artificial islands large enough to support air strips, hangars, fortresses, etc.

The maps below are just two examples of how the different territories are claimed and who occupies what. There are many maps and all show something



different, depending who drafted the map. If you google on Spratly, you can see yourself the great number of maps available and all showing a different picture, depending on who created the maps. The outposts and facilities currently present in the region vary from small islands and coral rocks, to large fortified platforms and islands, including in some case airstrips for large planes.

I have included some pictures of the kind of old and new outposts that have been established by the different countries that make their claims in the area. Due to the tension in the region, it becomes more and more complicated to undertake amateur radio operations from some of the islands. Several operation took place over the last two decades and in more recent history it was mostly operations licensed by Malaysia and Philippines. Obviously, getting permission to from the respective authorities to land on one of the islands is the most difficult obstacles but even with permissions on hand, the situation can change at the last moment.

I have experienced it my self when applying for an operation from Pulau Layang Layang (also known as Swallow Reef and called Danwan Jiao by China and Đá Hoa Lau by Vietnam), an island occupied by Malaysia and housing a naval base and diving resort. Finally the permission came through at the moment I just wanted to cancel the trip. For me it was a special experience to operate from the area where nearly 25 years earlier a tragedy took place when trying to air Spratly. That particular story has been documented by DokuFunk from Austria which I will share here with the courtesy of Wolf Harranth, OE1WHC, with some additional materials from my own archive.



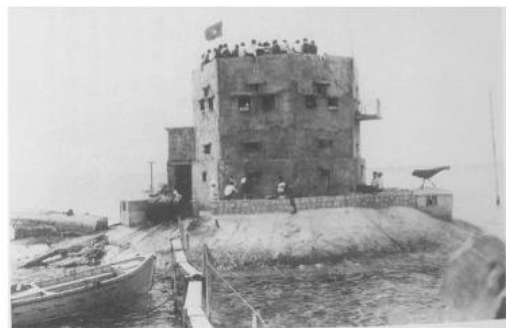
Failed attempt - DJ3HG, DJ4EI, DF6FK, DJ6SI - The Spratly Tragedy

Team: Gero Band, DJ3NG; Diethelm Müller, DJ4EI; Norbert Willand, DF6FK; Baldur Drobnica, DJ6SI.
Skipper: Peter Marx and his xyl Jenny.

On 31 March 1983 the team left for Singapore, where they were met by Henner, 9V1WC, who would help the team with their planning and last-minute details. The team found a German skipper, Peter Marx, and his catamaran, to provide transportation to Barque Canada—an island in the Spratly Group. The team, including Jenny, the wife of the captain, left on Easter morning, sailing through the Singapore Strait on their way to the Spratlys. As they neared Amboyna Cay, near Barque



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Above: The kind of old and new outposts that have been established by the different countries that make their claims in the area.

Canada, they slowed their speed, since they knew that either Malaysian or Filipino soldiers may be present. Their information told them that Amboyna Cay was in the hands of the Malaysians. As they got closer to the island, a hut-like building appeared, but no sign of soldiers. On closer observation, the team saw a watch-tower, and immediately changed course to avoid any chance of contact. As they changed course, they noticed a man in the tower, giving hand signals and in a few seconds the shelling began.

The first shot fell short, but the next shot struck the captain and he threw himself on the floor, although bleeding badly, as he tried to keep the ship on course. Baldur was also hit in the arm, and was bleeding, as was Norbert. Gero was in contact with another station on 20 meters, and advised him that they were under attack. As

Gero left his position, they noticed that Diethelm was missing. It was not actually known if he was shot or thrown overboard. Their dinghy had fallen into the water, and everyone climbed into it, while the boat burned.

The shelling continued, as they drifted farther away from the island. They had hoped that the message Gero had sent out on 20 meters had been received okay, and they would be rescued by U.S. Air Force planes in a few days. They believed that the Vietcong had shelled them, and soon discovered their dinghy had also been hit, but they were able to plug the hole with cloth. The bad news was that they had no water, and nothing to eat, and all were only partially clothed with no shoes. They used a small basket to catch tiny fish, which they ate, along with a few mussels from the bottom of the dinghy, but still no water. After about eight days, Gero tried drinking some sea water during the night, and he was dead by morning. They buried him at sea. Since the Spratly Group consists of so many reefs, sandbars and shallow areas, there is very little shipping nearby, so they had to wait until they got close to the shipping lanes for any hope of rescue.

Everyone was suffering terribly from thirst - there was little hunger. The skipper and Norbert were both in bad condition, and everyone's hope centered on a vision Baldur had had a few nights before, when he believed he heard a voice calling through dense fog: 'On the tenth day you will be rescued.' (which later became the title of Baldur's book) After several ships passed, indeed on the tenth day (April 19) they were finally spotted by a Japanese ship, the freighter "Linden" under Captain Inose. On arriving in Hong Kong, they were taken to a hospital, where they recovered from their ordeal at sea.

The GDR exploits the tragedy for Cold War propaganda

Press coverage, particularly in Germany, was heavy (see our documentation), and some hardliners in the German Democratic Republic seized the opportunity to launch an attack against their western counterpart. Baldur Drobica, officially employed by the

German Federal Republic's Office of the Interior, was indeed working for its Bundesnachrichtendienst, the Intelligence Service's Section IV (Counter Intelligence). His occupational background - and the fact that GDR intelligence was aware of it - was to be "leaked" to selected press and political sources in the GFR, alleging that the Spratly expedition was a spying conspiracy operation under the disguise of an amateur radio activity. For that purpose, the GST (Gesellschaft für Sport und Technik) - the Society for Sports and Technics, (in charge of amateur radio) was ordered to publish a pamphlet "for restricted circulation" listing all accusations and suspicions.

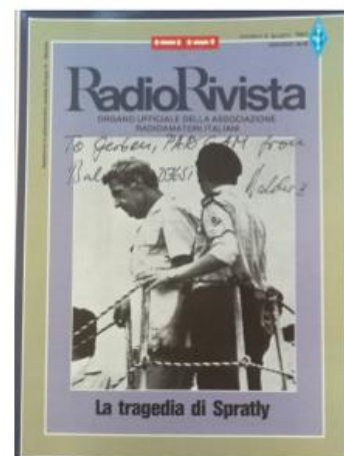
The records of this meeting, unfortunately, have not yet been released for public use. But there is no doubt that Harry Radke, a member of the ham magazine's editorial staff, when ordered to author the brochure, just followed the list of instructions, adding more or less only ham-related terms. (See our reproduction, in German). Everything went as planned - even the renowned "Spiegel" Magazine took the bait: Under the headline "Men from the Rhine" it wrote in its edition of 9 May 1983: "Is it possible that a German intelligence officer survives ten days without water and bread? This miracle happened, purportedly, in the South Chinese Sea. After the demise of the GDR, Harry was heavily blamed and reproached for his participation in a shoddy propaganda war.

Here a link to ["The expedition in the grip of cold war east-west propaganda"](#) (German) [PDF , 2.4 MB].

Below some other examples of media coverage from my own archive; Der Spiegel (black and white and Radio Rivista that covered the whole story, including a comic strip style summary.

~ 73 de Gerben, PG5M
pg5m@dx.to

This article first appeared in [DKARS magazine—January 2018](#). Reprinted with permission from the author.



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Back to Basics

John Schouten VE7TI

From The Basic Question Bank

B-006-10-4 Why is a 5/8-wavelength vertical antenna better than a 1/4-wavelength vertical antenna for VHF or UHF mobile operations?

1. A 5/8-wavelength antenna has less corona loss
2. A 5/8-wavelength antenna has more gain
3. 5/8-wavelength antenna is easier to install on a car
4. A 5/8-wavelength antenna can handle more power

An ordinary $1/4 \lambda$ (wavelength) vertical is smaller and resonant without any loading coil or matching network. What's the advantage to a $5/8$ wavelength vertical? Why $5/8$ in particular, and not something longer or shorter?

Indeed, why? A $5/8\lambda$ isn't resonant where a $1/4\lambda$ or $1/2\lambda$ would be.

The reason is the radiation pattern. The pattern for a $1/4\lambda$ monopole is essentially a doughnut, a pretty good pattern especially for a VHF antenna used primarily for local work. Extending the antenna changes the current distribution. This flattens out the pattern,

removing power from the useless (for VHF purposes) vertical dimension and giving more horizontal gain and at a lower angle. See the illustration lower left from the late L. Cebik. The $5/8\lambda$ antenna focuses energy somewhat better towards the horizon (lower radiation angle) than a regular quarter-wave antenna.

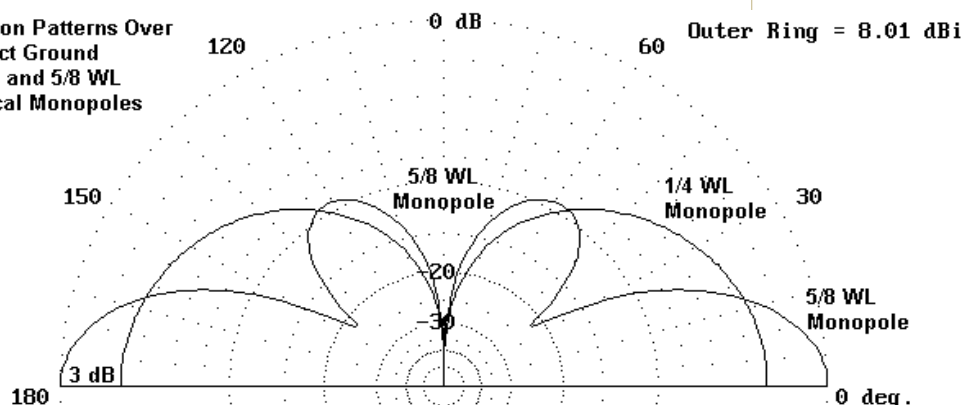
Depending on the source, they will quote anywhere from 1 dB to 3 dB gain over the $1/2\lambda$ design. There has also been some discussion that in some areas (urban and mountainous terrain) the lower angle of radiation is a detriment and a standard $1/4\lambda$ or $1/2\lambda$ antenna is to be favoured.

So, why $5/8\lambda$? Why not long longer? After all more gain is better right? Well, inspecting the figure below, you will notice the appearance of high angle lobes. As you lengthen the antenna past $5/8\lambda$ these lobes become more pronounced and break up the pattern in undesirable ways. Making it shorter maintains a good pattern, but the gain is less. So, $5/8\lambda$ is about optimal for this style of antenna.

You may have noticed a pattern developing here. A quarter wave ground plane antenna has a radiation pattern that produces maximum gain at about 25 degrees and a half

wave antenna drops that angle to 20 degrees, and the $5/8$ wave antenna further drops that angle to 16 degrees. So why not just keep extending the antenna out to one full wave? Well it would be nice if it worked but unfortunately the wave pattern begins to create very high angles of radiation beyond $5/8\lambda$.

Elevation Patterns Over
Perfect Ground
 $1/4$ WL and $5/8$ WL
Vertical Monopoles



So we've reached the maximum gain at this point and extending the antenna any further just reduces the gain where we want it (low angles). Of course if you are interested in very short skip, extending the antenna will produce nice gains over a dipole.

All antenna lengths depend on various factors. Some of these factors are:

- the height above ground;
- the diameter of the wire;
- nearby structures;
- the effects of other antennas in the area; and
- even the conductivity of the soil.

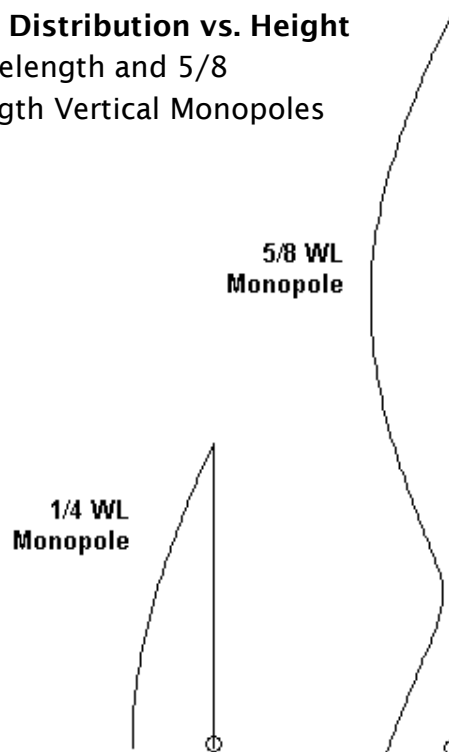
If we calculate the length of a $5/8\lambda$ antenna for the SARC repeater (147.360 MHz) the formula is $178.308/147.36$ which equals 1.21m (3.97 feet).

The answer to our question therefore is **2. A 5/8-wavelength antenna has more gain.**

Our next Basic Course starts April 3rd.

~ John VE7TI

Current Distribution vs. Height 1/4 wavelength and 5/8 wavelength Vertical Monopoles

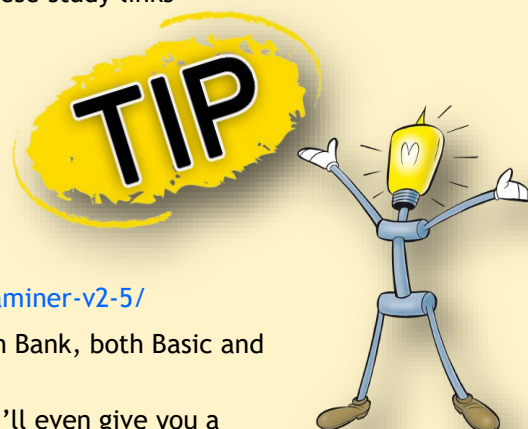


Study Links

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank.
<http://tinyurl.com/CanadaBasicQB>
2. There is a RIC-7 that has some explanations along with the questions.
[RIC-7 2014rev08.05 with explanations.](#)
3. The Amateur Radio Exam Generator is at:
https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at: <https://wp.rac.ca/exhaminer-v2-5/>
5. The Ham Study website has a flash card approach to learning the Question Bank, both Basic and Advanced. It is at: <https://hamstudy.org>

Contact SARC if you wish to write the Basic or Advanced Exam. If you pass we'll even give you a year's free membership!



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KB6NU's Column

Dan Romanchik, KB6NU

Which way does current really flow?

When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.com, teaches ham radio classes, and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.

I was recently taken to task by one of my blog readers regarding my description of current flow in my *No Nonsense Technician Class License Study Guide*. He wrote:

You casually say that current flows from Positive to Negative (with cool accompanying directional arrows), without any accompanying qualifying statement. Over the years I have looked at ALL the views on the subject. Positive to Negative is NOT what I was taught 48 years ago, and I have never seen a good reason to change my view.

In a subsequent email, he pointed me to a Nuts 'n Volts article, "[Which Way Does Current Really Flow?](#)" and asked my opinion. In the article, the author, who is a ham by the way, does a good job of explaining the various types of current flow.

I agree that in electronic circuits electrons flow from negative to positive, but it really doesn't matter. I agree with one the article's commenters who says,

This is a silly argument. It's like comparing apples and oranges and challenging people to take sides.

Electron flow is not current flow. Electron flow is easy to understand, an actual physical property, and a real help in understanding vacuum tube operation. But it falls apart when one needs to understand complex electronic systems.

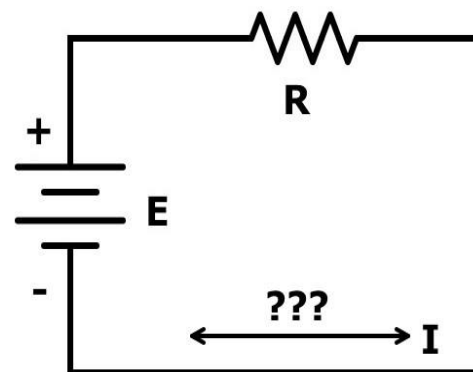
[Conventional] current flow is a mathematical abstraction. It is defined as a net flow of positive charge, irrespective of the polarity of the physical charge

carriers — whether electrons, holes, positive or negative ions, or whatever.

When looking at any circuit containing a resistance with a voltage across it, conventional current through that resistor says that the voltage drop occurs as the current through it meets resistance. On the other hand, in negative (electron) flow, a voltage INCREASE will correspond to the 'current' flow through it, clearly violating physical laws. Conventional current flow is consistent with the laws of physics and those of other engineering disciplines.

You are correct that engineers, professors and scientists use conventional current flow. That is not because they are too obtuse to understand electron flow; I assure you they fully understand it. It is because in their world they have to solve more general problems involving complex math and science, and, again, conventional current flow is consistent with physical laws.

It is unfortunate that electron flow and current flow are so often confused. They both have their place.



After reading that article, I thought I'd see what the ARRL Handbook has to say about current. In the 1963 edition, they don't mention electron flow at all. They have one diagram showing the direction of current flow in both series and parallel circuits, but the voltage source has no polarity. It's simply labelled "Source of E.M.F." Diagrams giving practical examples of series and parallel circuits do include a battery, and if the reader were to mash up the two diagrams, they would conclude that current flows from the positive terminal to the negative terminal.

The most recent edition of the Handbook that I have is the 2005 edition (it might be time to get another copy!). It says,

"Electrons move from the negative to the positive side of the voltage, or EMF, source. Conventional current has the opposite direction, from positive to negative. This comes from an arbitrary

decision made by Benjamin Franklin in the 18th century. The conventional current direction is important in establishing the proper polarity sign for many electronics calculations. Conventional current is used in much of the technical literature. The arrows in schematic symbols point in the direction of conventional current, for example."

Having said all that, I really don't see that there's much of a controversy here. I did learn to think of current as conventional current in college, although it was mentioned that electrons actually flow in the opposite direction. Using the concept of conventional current has never seemed to hold me back. I've been able to design circuits and repair electronic equipment thinking that current flows from positive to negative.

~ 73 de Dan KB6NU
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..., I really don't see that there's much of a controversy here...

Why Is Donald Duck On The Radio?

Math behind SSB explained

Al Williams WD5GNR writes on Hackaday about how voice is transmitted over radio waves

AM, or amplitude modulation, was the earliest way of sending voice over radio waves. That makes sense because it is easy to modulate a signal and easy to demodulate it, as well. A carbon microphone is sufficient to crudely modulate an AM signal and diode — even a piece of natural crystal — will suffice to demodulate it.

Outside of broadcast radio, most AM users migrated to single side band or SSB. On an AM receiver that sounds like Donald Duck, but with a little work, it will sound almost as good as AM, and in many cases better.

Read the full article and watch the video at: <https://goo.gl/bgQz23>



March 2018

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
For details on all SARC events, go to ve7sar.net For details on all SEPARS events, go to separ.shutterfly.com/calendar				1	2	3 08-1000 Club Social: Kalmar Family Restaurant—King George Blvd & 81st Avenue CONTEST: ARRL Int'l DX (SSB)
4 CONTEST: ARRL Int'l DX (SSB) Burnaby ARC Swap Meet	5	6 1930 SEPAR Net 2000 SARC Net	7	8	9	10 08-1000 Club Social: Kalmar Family Restaurant—King George Blvd & 81st Avenue CONTEST: RSGB Commonwealth (CW)
11 CONTEST: RSGB Commonwealth (CW)  Clocks Forward 1 Hour	12	13 1930 SEPAR Net 2000 SARC Net	14 1900 SARC Monthly General Meeting Satellites	15	16	17 08-1000 Club Social: Kalmar Family Restaurant—King George Blvd & 81st Avenue CONTEST: BARTG HF (RTTY) CONTEST: Russian DX (SSB, CW)
18 CONTEST: BARTG HF (RTTY) CONTEST: Russian DX (SSB, CW)	19 CONTEST: BARTG HF (RTTY)	20 1930 SEPAR Net 2000 SARC Net 	21	22	23	24 08-1000 Club Social: Kalmar Family Restaurant—King George Blvd & 81st Avenue CONTEST: CQ WW WPX (SSB)
25 CONTEST: CQ WW WPX (SSB)	26	27 1930 SEPAR Net 2000 SARC Net	28 SARC Exec Meeting	29	30 Good Friday	31 08-1000 Club Social: Kalmar Family Restaurant—King George Blvd & 81st Avenue

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>



Page 13—News You Can Lose

The Lighter Side of Amateur Radio

Innovative QSO Method Speeds Up QSL Process

By WBØRUR, on the scene

EAST FORK WORTH, Oregon -- Rural Macklinburg County ham radio operator Burt Groundsman has developed a unique method to speed up the QSL card process - the small, postcard "thank you" that radio operators send each other to confirm a contact.

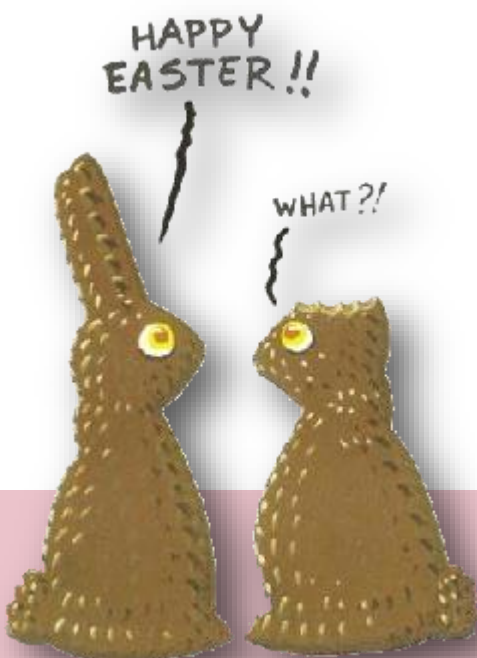
"It occurred to me as I was filling cards out. Each QSL card required me to write in a different date, time, frequency and mode of operation. Now, I only make QSOs on one day of the year at a specific time and frequency. I've had my QSL cards pre-printed with the date, time and frequency, so all I have to do is hand write the call sign in and I'm finished!"

The innovative idea has its drawbacks, though says Groundsman. Last year he inadvertently missed his scheduled time because he stepped out for a haircut. "I realized while sitting in the barber's chair that I was supposed to be on 20 meter SSB. Unfortunately, I had to wait an entire year to try and make another contact."

While some may scoff at Groundsman's idea, he says it's got a huge upside. "It only takes me about 4 seconds to do all of my QSL-ing for an entire year!" says the well-coiffed ham.

Interested in working Burt on the air? He's on 20 meter SSB, 14.240 MHz, December 13, at 10:30 UTC each year.

~ Ham Hijinks



Guide To Fuse Replacement



March 2018



At The Last SARC Meeting

February General Meeting Minutes

Wednesday, February 14, 2018

Location: Surrey BC Emergency Management Offices (PREOC)

President Stan Williams VA7NF welcomed everyone to the meeting and asked for announcements.

A visitor and basic ham class student, Richard Edge (and Debbie) were welcomed.

Financial

Scott Hawrelak VE7HA presented the financial report.

Membership

Membership now stands at 116 and is increasing as the new ham class fills.

Operations & Training Centre

SARC now owns an IC-7610 transceiver as of today and delivery of the Flex 6600 is expected any time. An OTC Committee meeting will be held on Sunday afternoon Feb 25th to discuss further expenditures for equipment. Installation of tower hardware including coax standoffs a replacement balun for the TH7 beam will be scheduled when the weather improves. It was also noted that one of our leased rooms at the OTC now appears to be assigned to another tenant. Stan and John recently met with the City of Surrey; the presentation that was given to them was shown and reviewed by Stan.



Club Inventory

Stan VA7NF stated that consideration is being given to selling off some of our surplus items at the

Burnaby Club swap meet. Sheldon VA7XNL expressed the opinion that it would be preferable to auction these items off to club members.

Fox hunt

Anton James VE7SSD advised that the Foxhunt will be held on Saturday, May 19th at Crescent Park (same as usual).

Repeater

It was noted that Echolink seems to be working again, but nothing had been done to the repeater that might account for the original problem.

Contesting

Some discussion followed regarding the BC QSO Party.

New Business

Jeremy in asking about member radio preferences/usage got the following result: 12 ICOM, 5 Yaesu, 1 Kenwood.

Weekly Net

It was noted that we need more net control operators especially backups.

Presentation

After coffee break, Adam Farson VA7OJ/AB4OJ gave a technical talk about his evaluation and testing of the ICOM 7610 transceiver. Many thanks to Adam for sharing his expertise with the club.

Meeting adjourned at 9:00pm

~ Jeremy VE7TMY
Club Secretary

Adam's Technical Evaluation of the IC-7610

I was able to spend some time with the IC-7610 in my hamshack, and thus had the opportunity to exercise the radio's principal features and evaluate its on-air behavior.

Physical "feel" of the IC-7610. The IC-7610 is similar to its predecessor, the IC-7600, in size and weight. The case dimensions are 340(W) × 118(H) × 277(D) mm and the radio weighs 8.5 kg.

The IC-7610 features a large (7" diagonal) LED-backlit color touch-screen display which dominates the front panel. This is an innovation in Icom's "base" HF transceiver product line, offering easy band/mode selection and navigation through the radio's menus. The placement of many control functions on the touch-screen and in the MULTI knob menus has moved many controls off the front panel.

The IC-7610 represents a major departure from the earlier 756Pro/7600 size/price category in that it has two completely separate and independent receivers, each with its own front end, Digi-Sel® preselector and signal path. The spectrum scope can be split into two independent scopes, MAIN and SUB, which can be displayed side-by-side or MAIN above SUB. Only the REF LEVEL adjustment is shared.

Owners of current Icom IF-DSP transceivers should find the IC-7610 quite familiar, and should feel comfortable with it after a little familiarization with the touch-screen. In addition to the display, the front panel has a number of feature keys in location similar to those on other Icom radios as well as two concentric knobs to the left of the screen (MAIN and SUB AF Gain + RF Gain/Squelch) to the right of the screen (Twin PBT and KEY SPEED/PITCH). On the right side are also the MULTI and RIT knobs. Pressing the MULTI knob opens a context menu on the right edge of the screen; this menu changes with the previously selected mode or function, allowing adjustment of appropriate parameters. Either receiver can be muted and un-muted by pressing its AF Gain knob.

The learning curve will be minimal for owners of other Icom IF-DSP radios. The Twin PBT and MULTI controls are multi-turn and detented. The main tuning knob is large and has a knurled Neoprene ring and a rotatable finger-dimple; it turns very smoothly with minimal side-play. Two front-panel USB "A" ports are provided; these support a keyboard for RTTY and PSK sending, a mouse, the RC-28 Remote Controller and/or a USB thumb-drive. The RC-28 plugs into one of the front-panel USB ports. It serves as a secondary tuning knob which is configurable to tune the MAIN or SUB receiver. The standard 8-pin MIC socket, and the 6mm PHONES jack, are on the

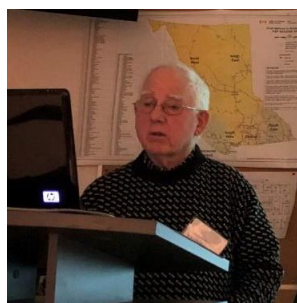
left side of the front panel. The supplied HM-219 hand mic or any other compatible electret or low impedance dynamic mic can be plugged into the mic jack. (The DC bias on the mic input can be turned off via menu.)

The rear panel features a comprehensive array of ports, including MAIN and SUB external speaker jacks, ACC1 and ACC2 DIN sockets, USB2 and USB3 "B" ports, an Ethernet port, a DVI connector for an external display (selectable 800 × 480 or 800 × 600 resolution) and BNC sockets for RX IN/OUT, EXT REF IN (10 MHz external frequency reference) and a transverter. A large muffin-type cooling fan is also mounted on the rear panel. All BNC ports are configurable via menu. The SD card slot for memory storage and loading, recording and firmware upgrade is below the AF/RF Gain/Squelch knob. A screen capture function (enabled via menu) allows capture of the current screen image to the SD card as a PNG or BMP file by briefly pressing the POWER key. The image can also be viewed on the screen via menu. Either the SD card or a USB thumb-drive can be used for saving settings files, audio files, RTTY/PSK31 decodes and screen captures, or for upgrading firmware. Like its predecessor, the IC-7610 incorporates a fully functional RTTY/PSK terminal, which displays the decoded text in the lower field of the screen and allows sending from a USB keyboard.

The IC-7610 is solidly constructed and superbly finished. As do other Icom radios, it conveys a tight, smooth, and precise overall feel. The die-cast alloy chassis also serves as a heat dissipator, and the sheet-steel case is finished in an attractive black crinkle coating. The front panel has a smooth, matte surface.

For a complete review see:

<http://www.ab4oj.com/icom/ic7610/7610notes.pdf>,
<http://www.ab4oj.com> and



March 2018

Club Station News

John Brodie VA7XB

An OTC Update



Stan VA7NF and John VA7XB met with City representatives (Councilor Mary Martin, Fire Chief Len Garis, and Deputy Fire Chief Mark Griffioen) on January 30th to review our 2 years at the OTC, and to outline some of the unresolved issues.

First on the list was our need to have some idea of security of tenure at the OTC, as the building is showing its age and, we suspect, may be a candidate for demolition in the near future. Councilor Martin committed to ask Surrey Facilities to provide some indication of the future of the North Annex but otherwise, no promises were made to resolve technical issues related to in-house RFI and Internet access. Worthwhile time was also spent in reviewing the role of SARC vis a vis SEPAR(S) and how the respective organizations fit with emergency services in Surrey and beyond.

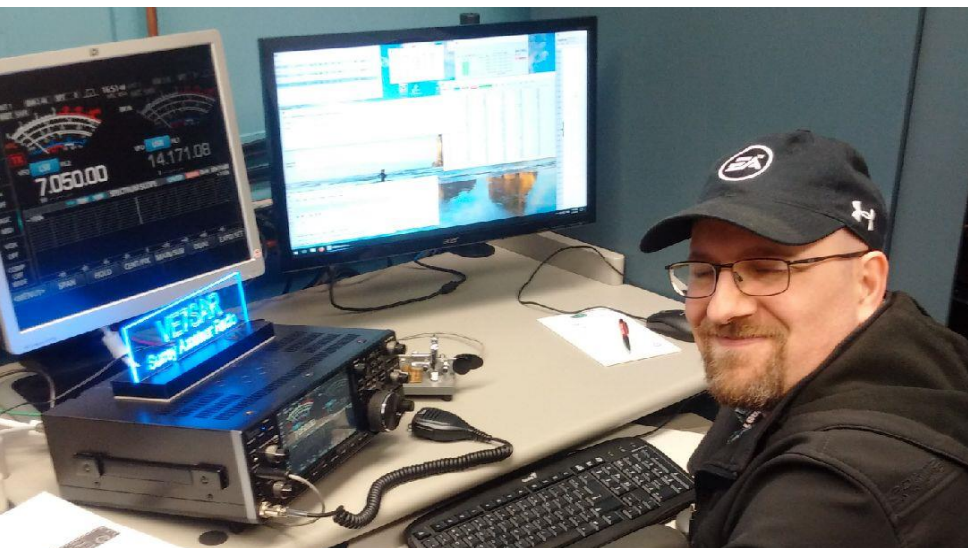
We have noted that the upper floor of the North Annex has been taken over by Legislative Services, the organization which is planning for a Fall municipal election. This group has also co-opted many of the

parking spaces formerly assigned to general use. In addition, all unoccupied rooms of the entire lower floor now bear signs stating that they have been leased by "Heritage Services". So we can hope that the presence of additional tenants will be beneficial and the lack of heating/cooling on the lower floor finally remedied.

The big news of the month is that SARC is now the proud owner of an IC-7610 transceiver. The unveiling was done after our Saturday breakfast meeting on Feb. 17th with Stan VA7NF, Kjeld VE7GP, Steve VE7SXM, Erich VA7EHB and John VA7XB in attendance. It didn't take long to get the new machine up and running, as the fundamentals seem to be mostly intuitive for those who are familiar with Icom radios. Of course, anyone planning to use the equipment should spend some time studying the manual to take advantage of its many features. Perhaps a hands-on tutorial would be worthwhile for those interested.

The excellent presentation by Adam Farson VA7OJ at our general meeting on Wednesday, Feb. 14th was most timely, as Adam was able to describe his technical evaluation of the 7610 vs the 7600, 7300 and 7851 (see page 15). It appears that the 7610 represents more than a marginal improvement over its predecessor, the 7600, as the 7610 reflects a quantum leap in terms of technological improvement. The low phase noise and enhanced adjacent signal selectivity will make this transceiver a dream to operate in the environment of other radios sharing the same space and antennas at the OTC.

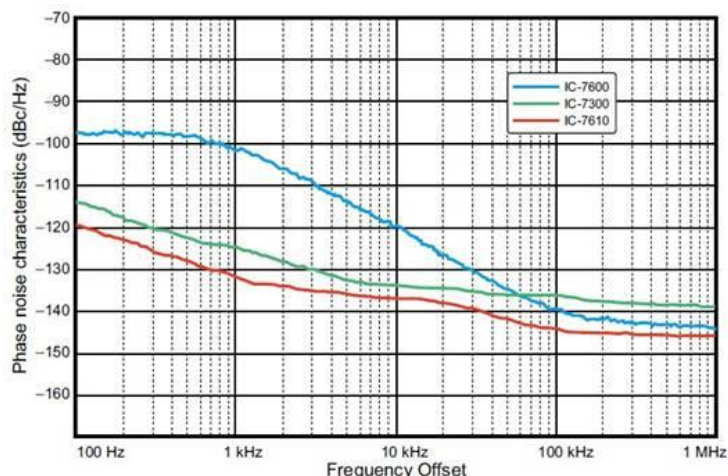
Jeremy VE7TMY tries out SARC's new iCom IC-7610



A meeting of the OTC Committee was held on Sunday Feb. 25th - attended by Jeremy VE7TMY, Stan VA7NF, Robert VA7FMR, Sheldon VA7XNL, Dan VE7BY, Steve VE7SXM and John VA7XB - for the purpose of deciding how remaining OTC + Gaming grant funds should be spent.

After vigorous debate it was decided that the following will be recommended to the Executive for approval:

1. The bulk of the remaining funds will be used to purchase an SPE Expert 1.5K-FA linear amplifier with antenna tuner, only subject to a final review of cost, availability and features over the next few days. This amp will be mated with the IC-7610.
2. Purchase of new antenna(s) will be deferred as we have no indication that a second tower will be allowed at present (as an aside, the need for replacement of the existing wire antenna is recognized and would likely be financed out of club funds).
3. Purchases of generators will also be deferred for the next round of grant application as, in the meantime, the need can be filled by personal equipment and the old 3 kw generator mounted on the yellow tower.
4. The general feeling was that individual members planning to use the OTC radios should acquire their own headsets and adaptor cables.



IC-7610 Characteristics

5. Insurance for capital equipment, being properly an operating expense, should come out of club general funds.

As a separate project, the Committee also needs to schedule time to install coax standoffs on the yellow tower and a replacement balun on the TH7 beam.

More of Adam's technical assessment can be found at : <http://www.ab4oj.com/icom/ic7610/7610notes.pdf>

~ John VA7XB



TCA
The Canadian Amateur

Canada's Amateur Radio Magazine
La Revue des Radioamateurs Canadiens
JANUARY / FEBRUARY - JANVIER / FÉVRIER 2018

In this issue:
RAC Canada Day Contest 2017 Results



Cowichan Valley Amateur Radio Society's Search and Rescue Efforts









The Radio Amateurs of Canada (RAC) magazine 'The Canadian Amateur' (TCA) January-February is now available to members. For membership information, please visit: wp.rac.ca

March 2018

Surrey Emergency Program Amateur Radio



The SEPAR Report

Roger Andrews VA7VH - SEPAR Coordinator

New Training Opportunities

I had a very productive and extremely positive meeting with Deputy Chief Griffieon and Assistant Chief Shelley Morris this week.

Changes are coming to SEPAR! I see them as very positive and I'm sure those of you, that want to see SEPAR thrive, will see them the same way. The [Surrey Emergency Program](#) (SEP) is committed to funding the needs of SEPAR, as well as training and motivating it's members.

SEP wants a vibrant and successful Emergency Communications Team that can easily interact with their staff in a disaster. That cannot happen if our people are not properly trained. All new members will be immediately required to take two home study courses from the Justice Institute of BC (JI). New members must complete these courses prior to being considered SEPAR volunteers and receiving their EMBC Card.

Existing members that are active will also be required to take these courses. Others that have take the ICS-100 course have said they only spent 2.5 hours on it. These courses will be paid for by SEPAR but do not take them without being authorized first. **YOU WILL GET FUNDING TO TAKE THE COURSES.**

EMRG 1100 (Introduction to Emergency Management in Canada)

EMRG 1200 (Incident Command System Level 100)

If you have successfully completed these courses in the past, please notify me by email at va7vh@separs.net. New courses will be offered in the future.

These requirements should be seen as a positive step to train volunteers. Many of you have complained that SEPAR is stagnant and we do not receive training or that we get the same training every year.

From the view of the Surrey Emergency Program, in a disaster our people will be required to operate on their own and be familiar with how an Emergency Operations Centre (EOC) and the emergency system works. SEP doesn't want to be tripping over people that are unfamiliar with how a disaster is managed. We volunteered to be Emergency Communicators for the City of Surrey and that moved us from the realm of Amateur Radio operators to Emergency Communicators. We can be the unsung heroes in a Disaster or the ones that made the whole process difficult and confusing.

Another positive change is that SEPAR will be inviting active members to quarterly catered dinners starting in April. These will initially be a chance to meet our City emergency coordinators and later to be a positive place to do a short exercise or discuss plans and needs of the future.

This fall SEP will be holding an emergency exercise and SEPAR is to be there as a participant. SEP again stressed the need to have those that participate, be able to understand the procedures being followed and the role of the EOC. This is again another reason for the training requirements.

A further change relates to SEPAR membership. We have a number of inactive members. Those members do not participate in Nets and do not attend

SEPAR sponsored events. I am in agreement with SEP staff, that those members are not as valuable a volunteer as they could be. Everyone would like to see the inactive members take an interest again in SEPAR. In the near future we hope to offer an incentive to have our inactive members become active, or in the alternative to acquire new members that want to be an active part of the City's emergency communications team. Inactive members that are unable to increase their commitment will be asked to surrender their EMBC card.

There is no value in a volunteer that cannot be found. About 50% of SEPAR members do not check into the Net and do not respond to emails. One of the main measures SEPAR has to measure activity is the SEPAR weekly Nets. Members that wish to remain active should be able to volunteer an hour of their time (2 Nets - with no "in and outs") from the comfort of their radio shack every month. How simple is that? What other city volunteer can show commitment without leaving their house! It would make the Nets more fun and show the rest of the City that our organization is as vibrant as I envision it. Why can't we have 20, 30, or more members check-in every week.

Every day there is a Net on the VE7RPT repeater at 9am. Almost every day close to 50 or more local hams check in to that net. I've heard the argument that our net is boring because it's the same every week. The Net on VE7RPT proves that to be a poor argument. That Net is the same, day after day, every day of the year with mostly the same people. Hams want to check-in. Our volunteers need to do the same.

Training

I'd like to have an initial 4 people volunteer to take the Justice Institute course EMRG 1100 (Introduction to Emergency Management in Canada). As mentioned above, this is a fairly easy course. It is correspondence and self study. It's expected to take you no longer than 7 hours to complete but I only took a little more than a couple hours to do it. Please add your name to the list and I'll ask the City to increase the spots.



Weekly Nets

Every Tuesday evening at 1930 hrs (7:30pm PDT) we start a ½ hour NET on a local repeater provided by the Surrey Amateur Radio Club (SARC) on 147.360 MHz +600kHz and a tone of 110.9. There may be a simplex test or a test NTS message transmitted during the NET at the Net controllers discretion. This is an excellent opportunity to practice sending and receiving this form of messaging. Besides, it adds a little spice to the regular check-ins on the net. Please join us. NTS Radiograms can be found on the SEPAR website here, or, if you would like a fillable PDF that you can enter on your computer, you can get it from here.

Thursday nights at 19:30 hours, This Net has changed! We are no longer doing a regular 2 meter simplex Net on this night. Any plans for Thursday night will be announced on the Tuesday before. This night will now be used for optional tests. For example NTS Digital exchanges, 6 meter, 2 meter 60 cm and 220 Nets. If someone wants to do a particular net on a Thursday, then please announce it on the Tuesday before.

~ Roger VA7VH
SEPAR Coordinator



There is no value in a volunteer that cannot be found.



Surrey Emergency Program Amateur Radio

March 2018

Radio-Active

John Brodie VA7XB

Profiles of SARC Members



Roland Klann
VE7RGK

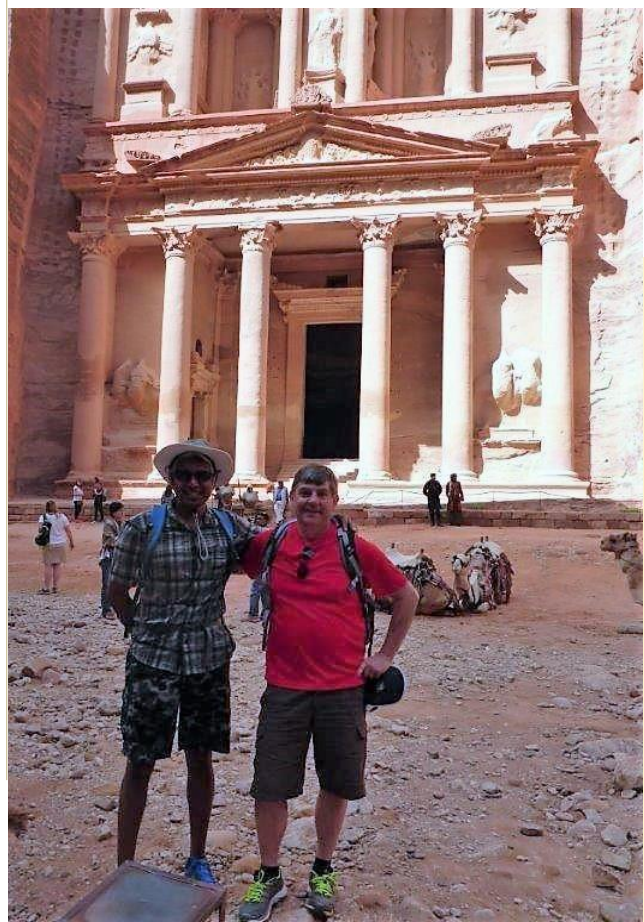
We first met Roland Klann (now VE7RGK) at a basic licensing class in 2016. I remember him well, as he asked lots of questions and shared his off-road experiences with the rest of the class. Now a resident of Coquitlam, he was born and grew up in Calgary but has also lived in Campbell River and Maple Ridge during his adult years. He graduated with a degree in Mechanical Engineering from Queens University in Kingston, Ontario and later obtained his P.Eng. Roland has his own business as a building inspector.

Roland has travelled extensively throughout the world including Europe, the Middle East, Mexico, Alaska, the Yukon and NWT in Northern Canada. He and his wife Ruth have sponsored two Tahramaran Indian children at an orphanage in Copper Canyon, Mexico and visited there several times to help out by maintaining buildings, constructing latrines, rebuilding churches or supplying food and clothing etc. This sounds like a worthwhile activity because, as Roland reports, the mortality rate for children under 10 years of age in this area of Mexico is about 50%.

Roland professes a special interest in biblical and other ancient history which has been partially fulfilled by trips to the Sea of Galilee, Nazareth, Mt. Arbel, Jerusalem, Petra, Massada (the last standing Jewish fortress) and the Hezekiahs tunnel. Particularly noteworthy was an opportunity to view the Dead Sea Scrolls. In Turkey he has toured Istanbul, the Hippodrome, the Blue Mosque, Topkapi Palace, Hagia Sophia and the seven churches mentioned

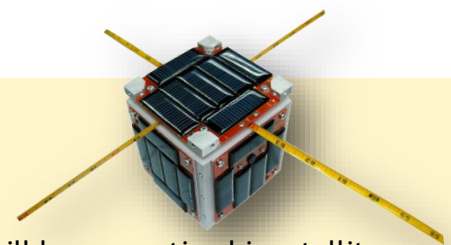
in the Book of Revelation (Smyrna/Izmir, Pergamum Sardis, Laodicia, Hierapolis, Aphrodisias Didma, Miletus, Priene and Ephesus).

More locally, Roland and Ruth integrate their love of hiking, camping and off-roading with amateur radio through Summits-on-the-Air, for which he has activated two summits. On his bucket list is a road trip over the Dempster Highway in the Yukon and beyond to the new all-weather road from Inuvik to Tuktoyuktuk.



In the realm of amateur radio, Roland aspires to learn CW and to become more active in the digital modes.

We are always glad to see Roland at Saturday morning breakfast meetings where he makes the long trek from Coquitlam to Surrey. He expresses thanks to Surrey ARC by saying “you guys are so enthusiastic and helpful - I really appreciate it!”.



Satellite Presentation In Surrey, BC

ARRL Instructor and Legacy Circle Club member **Clint Bradford, K6LCS**, will be presenting his satellite talk at the Surrey (BC) Amateur Radio Club on March 14, 2018. All are welcome to attend.

The meeting will be held at the LDS Church and Hall at 6270 126 St. Surrey, at 7:00 PM.

For more information visit the SARC web site at: <http://ve7sar.net/index.html>

Attendees will be shown EVERYTHING needed to work the FM voice ham satellites - with a re-occurring theme of, “Most hams already have most of the necessary equipment ...”

Attendees can download a four-page tutorial beforehand at... <http://www.work-sat.com>... and pre-presentation questions are welcomed: Leave voicemail at 909-999-SATS (909-999-7287), or send email to k6lcs@ham-sat.info!



Surrey Amateur Radio Club

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|---|--|
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8 sessions on Tuesdays 6:30pm—9:30pm
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Surrey Fire Training Centre
14901 64 Avenue, Surrey, BC





Tidbits from the Amateur Radio World

Merging the Band Plans Worldwide

The International Amateur Radio Union (IARU) has three regions, which are steadily aiming at a unification of band planning.

The WIA Technical Advisory Committee Chairman, John Martin VK3KM, reports that this is progressing well, with the band plans set by the WIA generally fitting in to the global scheme.

However, the exception is 160 meters with different bands allocated in each IARU region.

A further complication is Australia's digital mode segment of 1800 - 1810 kHz, which was adopted before the IARU Region 3 band plan for that spectrum.

Ultimately, 160 meter mostly crystallized AM activity, will have to move higher in that band, to align with the global band planning for digital modes.

The TAC Notes in December's Amateur Radio magazine discuss the issue in detail, which will be revisited late next year at the IARU Conference in South Korea.

~ Jim Linton VK3PC

BAKER ISLAND DXPEDITION TO HONOR EARHART

American aviatrix Amelia Earhart still captures the imagination of the world and certainly the world of amateur radio. This year, the pilot is being remembered

as part of a larger commemoration on a major DXpedition, as we hear from Jim Meachen ZL2BHF.

Most of us remember the American amateur Brian Lloyd WB6RQN who last year commemorated Amelia Earhart's final flight by piloting his single-engine plane around the globe along what was Earhart's final route. This year the Baker Island DXpedition KH1/KH7Z is staging its own tribute, marking the 81st anniversary of Earhart's disappearance on that flight. At the same time, the DXpedition is also honouring the colony of students who were living on those islands at the time of her flight and who had helped prepare for her arrival.

Earhart went missing on July 2, 1937 near Baker and Howland islands. An airstrip had been built for her much-anticipated landing by Hui Panala'au students from Hawaii who were living on the islands at the time. The students were living there as part of a colonization project designed to help legitimize the islands as U.S. territories. They awaited the pilot's landing, which never came. The location is the fourth most-wanted DX entity.

The DXpedition is expected to cost an estimated US\$400,000 with the operator team contributing about half.

For more details, visit baker2018.net



I've just read through The Communicator. At least I've looked through the entire issue and I've read several of the articles. This is my first time seeing the publication itself. I did comment on the Baofeng article previously and mistakenly thought that was the entire issue. But now I see the entire issue. I am blown away. What a wonderful publication. Terrific layout, great writing, wonderful artwork. This is amazing.

Thank you—Ed.

March 2018



The Contest Contender

Fred Orsetti VE7IO

BC QSO Party 2018

This year's BCQP was a two day event, Saturday 8am to 8pm and Sunday 8am to 4pm. The BCQP is one of several QSO party's plus the CW sprint which starts at 4pm local time on Saturday. Because the CW sprint uses a considerable part of a band completing a BCQP QSO in CW was challenging, adding Sunday solved this issue. Early reports seem to suggest that holding BCQP over two days was a positive change.

This year at VE7IO we had the same team as in past years with the addition of Pedro, VA7XP. We tried to balance SSB, CW and RTTY always paying attention to multipliers. Like other contests this contest can be won or lost on mults. We used the call VA7NF with great success. This two letter call works well on CW and our ops have found some interesting phonetics like "naughty fox" to attract attention.

We set up three stations, a Flex 6700, an Icom 7610 and an Icom 7300, pretty much state of the art transceivers. Full legal

limit was run on all three stations. We even had some success running two radios on 20 meters, one on CW and the other on SSB. It worked for a while but we only managed this for a short time. The new SDR radio technology clearly helped pull the weak signals out of an annoying noise level.

The Surrey ARC allowed us to use the club's US towers mobile 100' crank-up with a TH-7 tri-band beam. Permanent antennas a 3 element SteppIR at 60' a TH-6 at 65', an 80 meter dipole at 90' and an OCF dipole for 160.

Our operators have been at many contests at VE7IO including several BCQP wins. They are familiar with the equipment and have become proficient with N1MM+ software. The SSB ops have used pre-made .wav files for a few years now however with this contest we used a relatively new feature in N1MM+ that allows the op to create or change the wav file on the fly. It was not a smooth transition do to the number of settings in



Band	Mode	QSOs	Pts	Mul	Mt2	Pt/Q
1.8	CW	1	4	1	1	4.0
1.8	LSB	3	6	3	1	2.0
3.5	CW	5	20	5	1	4.0
3.5	LSB	19	38	11	1	2.0
7	CW	27	108	19	1	4.0
7	LSB	187	372	50	1	2.0
7	RTTY	21	84	8	1	4.0
14	CW	152	604	52	1	4.0
14	RTTY	78	312	35	1	4.0
14	USB	544	1088	56	1	2.0



Microham, Windows and N1MM+ but we made good progress. One advantage to recording wav files using N1MM+ is that the recorded audio is the same as or very close to the mic audio when in use. Most likely we will continue to use this N1MM+ feature to gain more experience

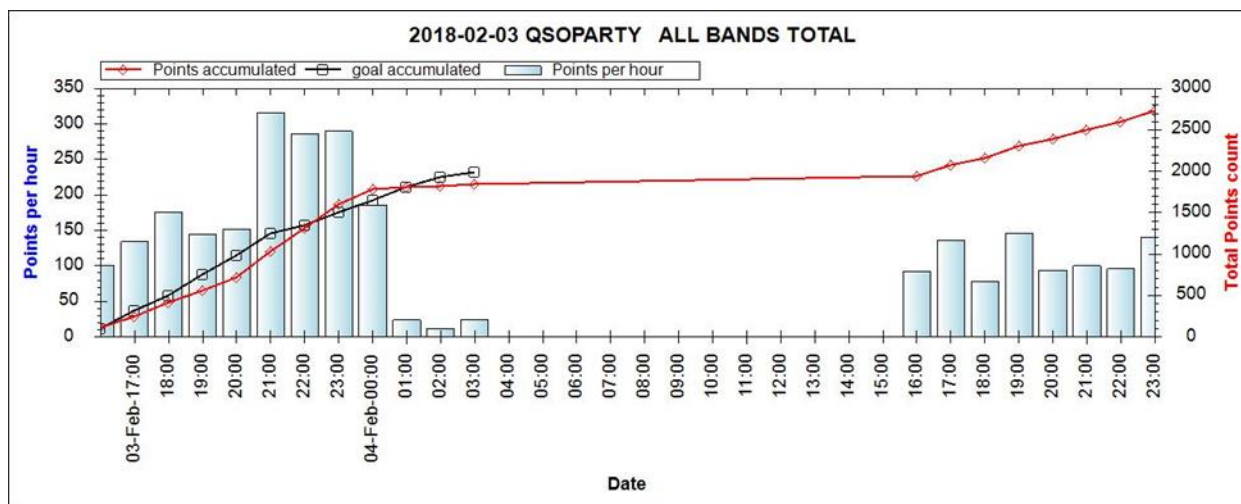


Even with marginal and sometimes non-existent propagation we managed to maintain a reasonable run rate. But did find that we were able to work down the number of available Q's in this contest. We had a great time and encourage other stations, particularly in BC, to join in you will have some laughs and lots of fun.

Hope to see you in the pile-up!

~ Fred VE7IO

Black line is last year's point score - Red line is this year's point score



If you are getting "static" about your Ham-related activities, here is a link that will show the benefits and innovations that our Hobby brings:

<https://goo.gl/WsWU2B>

March 2018

TECH TOPICS

Daniel Romila VE7LCG

The Quick , Cheap and Simple Dual Band Dipole Antenna for Your Hand-held



With the increase in the number of radio amateurs getting cheap Chinese walkie talkies, there is also an increase in people wanting to use the same walkie talkies as a home radio station, mainly for participating in the nets, but also for general traffic.

This article explains a cheap way of making an unbalanced dipole that gives good results for the 2 meter and 73 centimeter band. I will also present a version of the same antenna which allows working the 1.25 meter band, too.

The final dual band product looks like the photo upper left, and the tri-band telescopic dipole looks like the photo lower left.

Starting points

1. The intended handling power is up to around 10 Watts. With better construction techniques than what you see in my pictures, you can make it work even at 50 - 100 watts. Please keep in mind that what you see in my pictures is an experiment, and the "improvisation/continuous modification and experimenting" allowed me to write this article.
2. The Chinese walkie talkies accept almost anything as an antenna; they do not fail easily if the antenna is not perfectly tuned and adapted.



3. Any antenna you would use instead of the rubber duck antenna will improve your radio experience. When I said improvement that means that using the described dipole you can work through repeaters that you cannot even activate with the rubber duck antenna.

Construction of the dipole antenna

I used a plastic case from "Frost Mints" that can be bought from Walmart. It has 2 holes on the sides, in order for 2 metal parts cut from metal hangers to be able to get out of the box. There is another bigger hole, perpendicular on the dipole arms, for the cable:



This is an unbalanced dipole. The total length of the dipole should be 98 centimeters, so each arm should be around 49 centimeters (the metal part is practically shorter, because you need some space for connecting the feed cable). Those lengths come from practicing with telescoping arms, and they match the theoretical calculation. I

used the calculator from <http://www.66pacific.com/calculators/dipole-antenna-length-calculator.aspx>

I did not use a balun to adapt from the balanced dipole into an unbalanced coax cable. The impedance of this dipole is 75 ohm. I tried the antenna with both 75 ohm cable and with 50 ohm cable. It works with both. When I used the 50 ohm cable I noticed the length of the antenna is more critical than with the 75 ohm cable, the TV type of coax cable. I was able to extend/reduce the length of the arms with one centimeter more each without noticeable loss of signal strength, when using 75 ohm cable, in comparison with the extending/reducing situation when I used 50m ohm cable.

The trickiest part in the construction is opening the Frost Mint box. One has to open the lid, and after pull up the lid in order to separate the upper part from the lower part of the box. The box is so well done that it is difficult to see the separation line between the two parts. After less than an hour of work, my antenna looked like this:



More important than the impedance of the coax used is length and position of the cable.

- Try to have as much of the cable as possible perpendicular on the antenna
- Keep the cable short. You do not have power to waste from a walkie talkie
- If you do the construction as I did and as it is shown in the pictures (again, please have in mind I was

experimenting - you can start based on this article with better construction!) it will work in the 2 meter and in the 73 centimeter bands.

- Find a sweet spot to install the antenna. Connect the walkie talkie to the antenna and walk inside the intended radio room for finding the spot. Try to activate a repeater that is not close to you. VE7DJA a Nanaimo repeater is a good candidate for testing (Rx=145.430 MHz, Tx=144.830 MHz, PL tone=141.3 Hz).

In my case the position of the antenna on the wall is critical. If I move a half meter left/right or up and down I no longer trigger the repeaters. The active arm (center conductor) of the antenna should be up. I was not able to observe from the experiments that putting the dipole upside down modified the results in any way, but I still prefer to have the hot arm up.

In order to connect the antenna to the walkie talkie I used TV coax cable that had already an F type connector at the end. I used a SMA female to F female RF coax adapter that I already had, bought from aliexpress.com for 0.86 CAD, shipping and taxes included. I confess this is the only part I bought for the antenna, so my total cost for the dipole is under 1 Canadian dollar.

You might use a different connecting solution, suitable for you.

I ended up using an old TV rabbit ear antenna, with telescopic arms. When I used it for 2 meters and for 73 centimeters I used a total length of 98 centimeters. The total length for 223 MHz is 64 centimeters.



March 2018



Some of the results

I live in Coquitlam, at the corner of Austin with Gatensbury. I am at 130 meters above the sea level, with clear view towards the South. The situation is not so favourable towards East and West. I could activate the repeaters listed below on January 25th 2018, at 10 PM.

My thanks to George, N7GME, with whom I talked through the WW7RA repeater and to Jim WF7W with whom I worked through his own repeater, WF7W. I really bored those guys, because we talked a lot, several times. You should try them, too. George N7GME even sends me emails to participate in their club and nets.

Observations

- Instead of using cheap RG58 cable that is 50 ohm, you are better off using 75 ohm coax cable RG6. This is because of the losses, as specified and also measured at 400 Mhz:

<http://www.rfcafe.com/references/electrical/coax-chart.htm>

- You can even have your antenna fully matched at both ends, with 75 ohm cheap cable, if the total length of the cable is multiple of $\lambda/2$, calculated dependent on the cable and the speed of the wave (velocity factor)

through the cable, respectively. But if you can keep the cable very short, that is better.

- A dipole 98 cm total length works OK on the 2 meters and 73 centimeter band. A 32 cm total length dipole would work better. For example, when I access the VE7USA repeater (in Victoria, Mt. McDonald, at 104.5 km distance from me, Rx=444.875 MHz, Tx=449.875, PL tone-107.2 Hz)
 - * with the 98 cm dipole, I can activate the repeater, I am heard there, but I cannot have a conversation
 - * with the 32 cm dipole I can have a conversation, and I often have to repeat what I say, some 50% intelligibility.
- From practice and not from scientific calculations, a 92 - 94 centimeters total length dipole works acceptably for all 3 bands of my walkie talkie: 2 meters, 1.25 meters and 73 centimeters. It is still a difference like night and day in comparison with the rubber duck antenna.

Thanks to VA7JRJ for helping me test through the VE7USA repeater. This repeater is in a bad direction for my location.

Repeater	Rx (Hz)	Tx (Hz)	CTCSS	Distance (km)	Location
WW7RA	146.620	146.020	103.5	189.1	Bremerton, Gold Mountain
W7FEL	146.760	146.160	100	136.7	Port Angeles, Striped Peak
WF7W	145.130	144.530	132.6	100	Port Angeles
W7MBYb	223.860	222.260	103.5	90.5	Lyman, Lyman Hill
W2ZTc	442.500	447.500	123	166.5	Quilcene, Buck Mountain
W7UMHc	442.400	447.400	107.2	90.5	Lyman, Lyman Hill

A table of my observations working various repeaters south of the border.

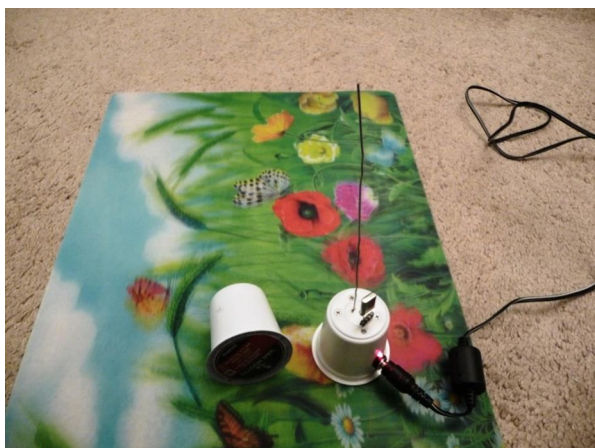


Daniel Romila VE7LCC

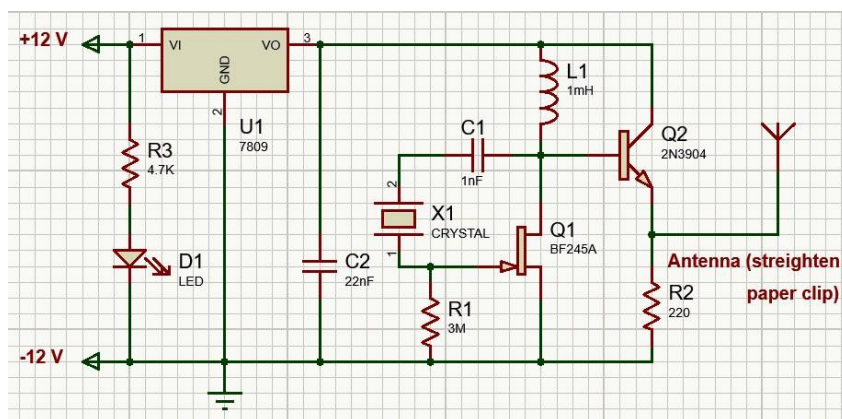
Boxing Day

Or the day when I recycled my recyclable plastic and metallic boxes from the kitchen

2017 Boxing Day was a glorious day for me. I did not score anything fabulous from the stores. I did not even start a boxing match with anyone for a certain item I wanted to buy. It was all peaceful, and still cheap. I decided the best gift I can do to myself was to finally put in enclosures various modules that I made in time and that I seldom used. If something is not finished in a case/box with buttons and connectors, it is not of much use.



I started small. I started with a Keurig cup that I just used. I simply liked the form of it, and felt guilty for all those cute plastics that I was throwing out. I put a crystal oscillator in it, with socket for the crystal. The final result looks like this.

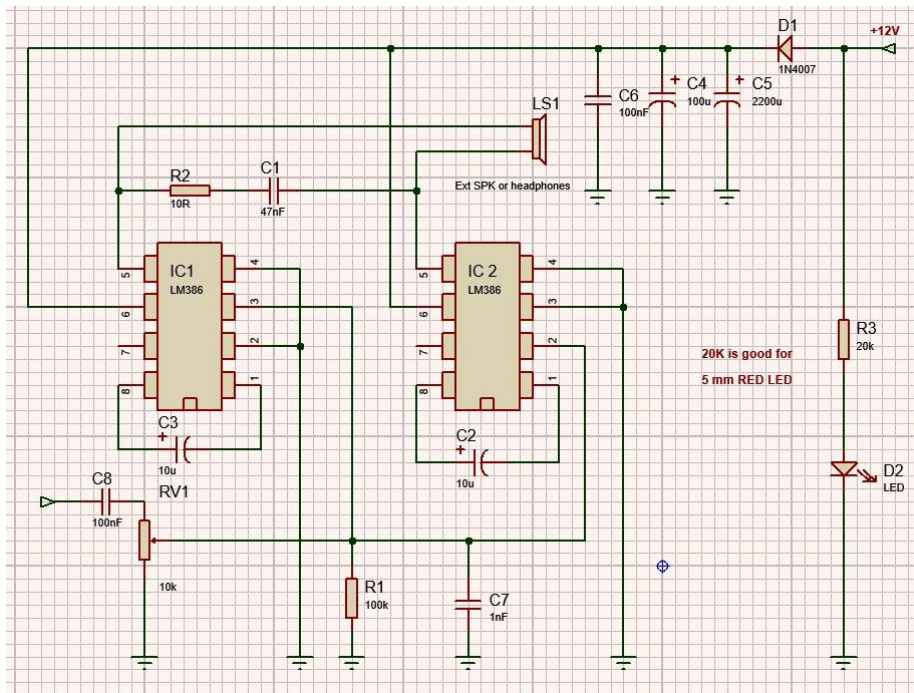


The schematics inside is not original design. I adapted schematics used by others with what I have. I successfully tested it with crystals from 4 MHz to 28 MHz. It is supposed to work in an even wider interval.



Based on the success I described above, I went "bigger". I had a bridged amplifier, with 2 integrated circuits LM386, in a luncheon tin I re-soldered after putting the electronics inside.

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The schematics found on the Internet was mistaken, but here under it is the correct version, with one of the entrances connected to the ground, as it should and as it works.

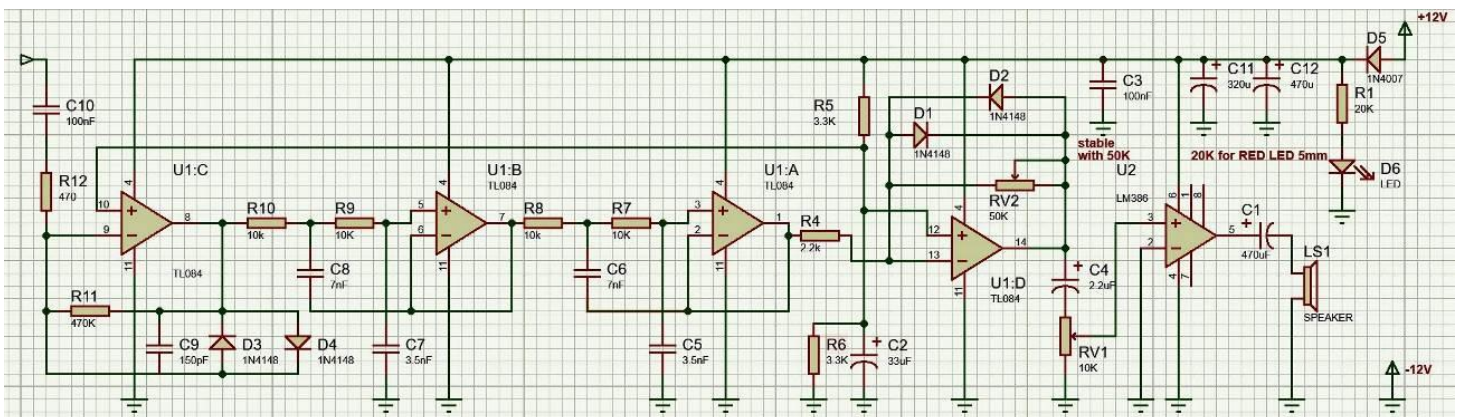
I did not need to connect a 470 KOhm - 1 MOhm between the pins 7 of the ICs and ground, in order to make zero volts on the speaker. I am happy with several millivolts difference between pins 5 of the two ICs, and it seems many people are. Note: the speaker connector of a bridged amplifier must be insulated from the metallic body.

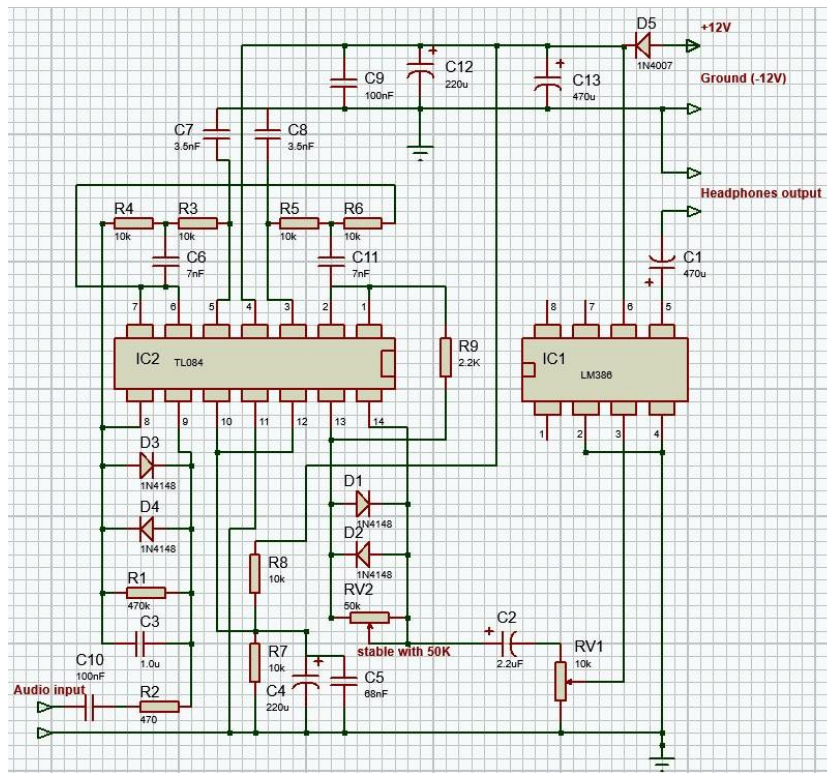


I also had a high gain amplifier, used to test direct conversion receivers, that could easily become unstable and enter into an oscillation loop.

The potentiometer of this amplifier was soldered directly on the PCB.

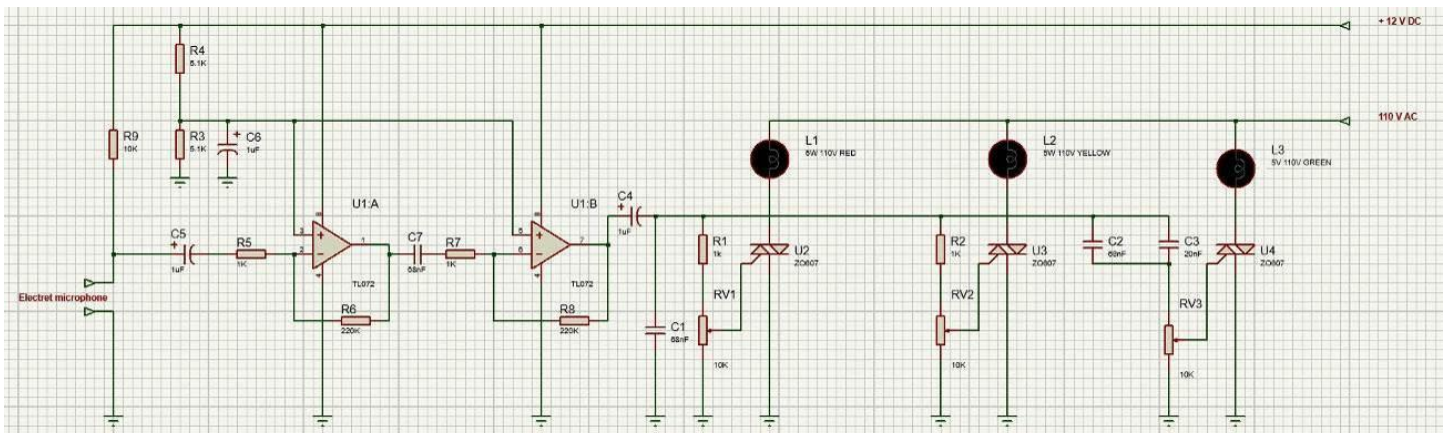
I used a TL084 JFET operational amplifier. The final LM386 is let quiet and not forced at more than 20 times amplification.



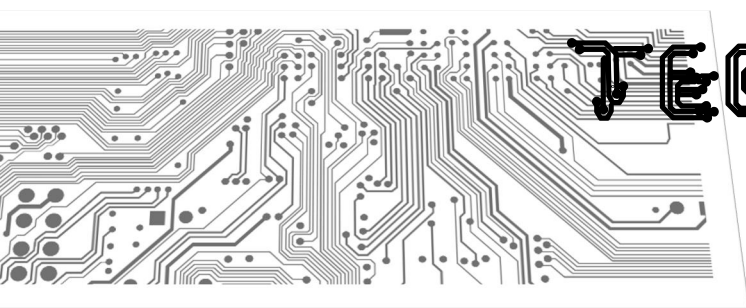


The peak of my activity was to put a light organ inside a “I can’t believe it’s not butter” margarine container.

I used triacs that were not very sensitive, so I have a long chain of amplification between the microphone and the triacs. The microphone is inside the box, fixed on the PCB. My roommate contributed to the final product by putting red tape all over, to look nice. Of course, this made the whole thing less sensitive and I had to adjust each channel, but the schematic has enough room for it.



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Paul Lutus KE7ZZ

More On Software Defined Radios

An amazing intersection of mathematics, computer programming and radio

Introduction

Let me provide a context for my amazement at software-defined radio (hereafter SDR). My first electronic hardware designs predated the common availability of transistors — as a teenager I would inherit my neighbors' broken vacuum-tube TV sets and turn them into Ham Radio transmitters and receivers. Years later I designed solid-state electronics for the NASA Space Shuttle.

Then I decided to learn computer programming and wrote a very successful word processing program for the Apple II (Apple Writer). This personal history means I became familiar with electronic circuits and computers when they were both rather primitive.

In the days when I designed spacecraft electronics, I would begin with a mathematical notion that might or might not become a physical circuit. A large distance separated conception and

realization, and the realization often bore only a slight resemblance to the conception. In those times it was slide rules to soldering irons.

All that has been swept away by events. It's not even a slight exaggeration to say we're witnessing a silent but widespread revolution that joins mathematics, electronics and everyday reality. Apart from abandoning many inefficient and dangerous things, like banks (replaced by blockchain) and cars driven by incompetents (replaced by self-driving cars), as a side effect this revolution shows the degree to which physical reality is innately mathematical.

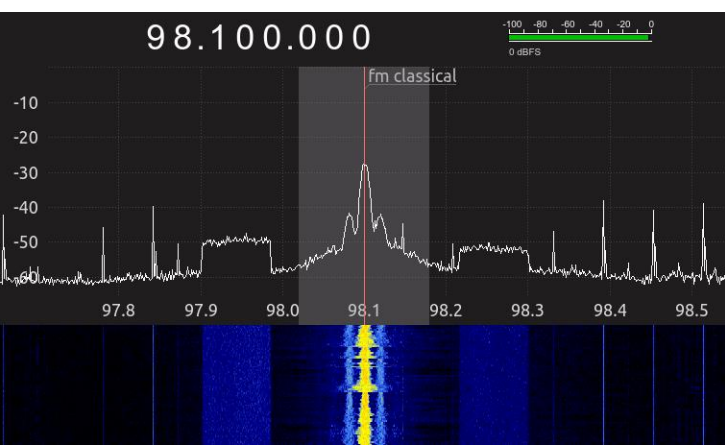
This article covers available SDR hardware, software and configurations, but it also teaches a little radio theory and mathematics, the kind of mathematics we all need to understand to avoid being pushed aside in a more mathematically adept future society.

SDR Hardware

Figure 1 [left] shows what a modern radio receiver looks like. It can be tuned and adjusted by a pointing device, or by a network command, or by voice. It's important to understand that this is a virtual radio, not a physical one — it does what an old fashioned radio does (and more), but it's not part of physical reality. Essentially, the "radio" is defined by a set of mathematical equations designed to imitate an earlier, physical device.

This particular radio is displaying an electromagnetic spectrum created by a commercial FM radio station. The spectrum elements closest to the vertical red line (the "carrier frequency") carry music and announcements, what we expect to hear when we tune in a radio

Figure 1: Virtual radio displaying the spectrum of an FM broadcast station



station with a conventional hardware radio. The two square blocks, located to the right and left of the central signal, carry special services provided by the radio station, like elevator music (i.e. "Muzak") and content directed toward special, niche audiences. Without a modern spectrum display we might never know about this special content.

RTL-SDR Device

Virtual radios like that pictured above work closely with a small, inexpensive external device – the hardware element most people associate with SDR – that accepts signals from a radio antenna and uses mathematics to convert the signals to a more useful form. Here's what such a device looks like:



Figure 2: Inexpensive SDR device

(There are many such devices available, I'm not endorsing this specific device.) In Figure 2, notice the two connections – at the left is an antenna cable that delivers radio-frequency signals from space to the device. At the right is a USB computer cable that delivers a processed form of the antenna input to the virtual radio shown in Figure 1.

I emphasize that, in the future, SDR devices like that shown above will be replaced by pure code and equations – no external hardware. Future computers will be so fast that they won't need dedicated modules to decode radio signals. But I digress.

The device shown in Figure 2 can decode signals from 24 MHz to 1.766 GHz. That covers a lot of territory – the FM broadcast band, many ham radio bands, all of modern TV broadcasting, public service (fire, police, etc.), aircraft, boats, "Family Radio Service" walkie-talkies, regional weather broadcasts and many other remarkable things (some of which I'm reluctant to reveal in a public forum).

NooElec Device

The above arrangement covers relatively high frequencies. To tune below 24 MHz with any reliability, one needs an additional device called an "upconverter" that works along with the basic SDR device. Here's what this special arrangement looks like:



Figure 3: SDR device plus upconverter needed for reception below 24 MHz

Unlike the earlier example in which I didn't want to seem to be endorsing a particular manufacturer's product, in this case I want to compliment NooElec.com on the upconverter module shown in Figure 3, which I regard as a first-rate product and superior to most competing products I've tested (apart from being a happy customer I have no connection with NooElec). It's not easy to design SDR hardware able to cover the spectrum from about 10 KHz (not a typo!) to 1.766 GHz, but (with some switch-throwing and offset frequency entries at the virtual radio) the arrangement shown in Figure 3 covers this entire range.

In Figure 3, an antenna suitable for HF reception (defined as the range from 3 to 30 MHz) is connected to the "Ham It Up" upconverter module (large connector at the left). The upconverter's output port is connected to the antenna input port of a typical SDR module (small pink cable), and the SDR module is connected via a USB cable (top center) to the computer hosting the virtual radio.

The upconverter covers the frequency range people usually associate with shortwave

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reception and Ham Radio activities, as well as the AM broadcast band (530 - 1700 KHz in the U.S.) and various special services located below the broadcast band including digital marine weather broadcasts and radio beacons.

The cost for the combination of the upconverter and basic SDR module shown in Figure 3 is obviously greater than for the SDR module alone, but it's still reasonable.

As before, this is just a snapshot of current hardware at the time of writing (Winter 2018). In the future I expect development of a single, more economical external device that will cover the frequency range now requiring two connected devices as in Figure 3, but in the longer term this capability should be included in a personal computer's basic architecture.

HackRF One Device

I mention HackRF One here only because it has a feature that's unique among present SDR devices. In other respects and in my opinion, HackRF One isn't a good choice for radio reception activities — it's way more expensive than its alternatives, it suffers from a number of engineering compromises (significant DC offset as one example), and in my experience it's more difficult to set up and operate than its alternatives. But HackRF One has an interesting feature that deserves mention — it can transmit as well as receive wideband, complex user-defined RF signals.

My readers most likely understand what an audio recording consists of, and a video recording is just an extension of that idea with a wider bandwidth. We're now seeing a further extension of this idea into the RF spectrum, where a radio receiver can record wideband I/Q data (this term is more fully explained below) from an antenna, save it to a file, then play it back — not as audio or video, but as a nearly perfect duplicate of the original radio transmission, same frequencies, same modulation. HackRF One is on a short list of devices able to do this.

In an experiment I set HackRF One to record a wideband radio spectrum that included the transmitting frequencies of two of my transceivers, set to different radio channels. While recording, I activated one of the transceivers, then the

other, then both transceivers at once — just to see if this combination of signals would confuse the recording process.

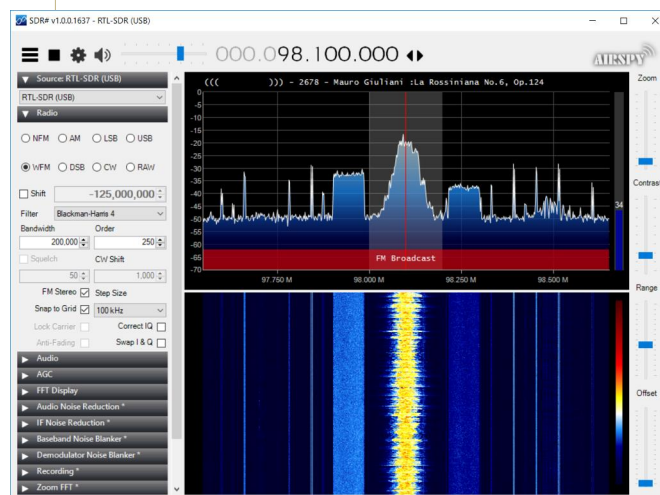
Then I let HackRF One play the recording back (in this case meaning transmit exactly what it had received). HackRF One wasn't confused in the least by this challenging test — it successfully played back the transceiver signals, including the moment when both transceivers were activated at once. I was amazed.

Again, if you're only interested in radio reception and you want the most value for your money, my opinion is to choose an HF upconverter other than this one. But if you want to experiment with RF signal recording and playback and can afford this expensive device, go for it.

SDR Software

Because so many people are writing and improving SDR software this section is likely to go out of date fairly quickly. But there are some worthwhile free SDR programs that deserve mention.

SDR# (Windows only) [below]. This program is changing fast (new name: AirSpy) and may eventually be removed from the free category. I tried to get this program running on Linux — SDR# is written in C# and because there's a freeware version of Mono available for Linux, many C# programs can be run there. But at the time of writing, technical issues keep this from working. The Android version of this program is no longer free, but the Windows version is still free. Setup on Windows is overly complicated and requires a fair amount of technical skill.



Gqrx, Windows and Linux (including Raspberry Pi), free. A rather good cross-platform SDR virtual radio, in active development. This program can be successfully run on a Raspberry Pi Model 3.

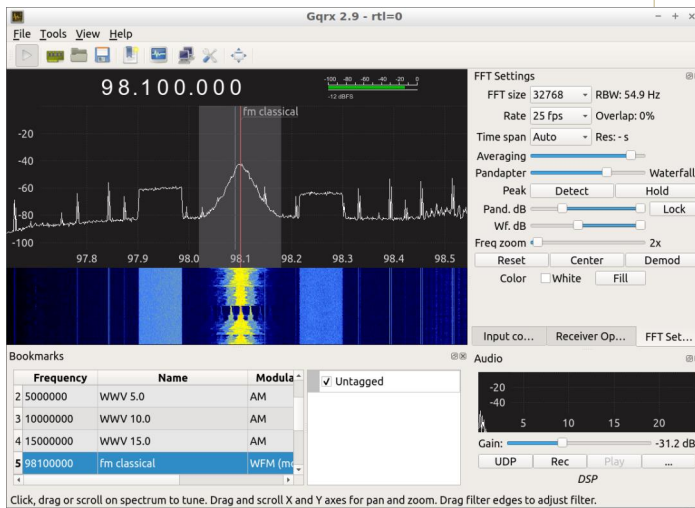


Figure 5: Gqrx User Interface

CubicSDR, Windows and Linux, free. This program has some novel and ingenious interface features, it runs well on a desktop or laptop, but it's not suitable for use with a Raspberry Pi in its present form.

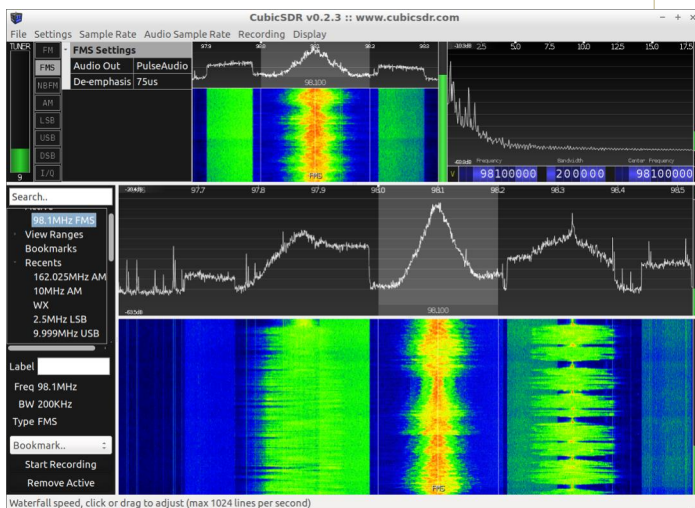


Figure 6: CubicSDR User Interface

There are many kinds of SDR hardware devices, each of which has special requirements. The above programs are able to work with the majority of available SDR devices by means of a wide collection of drivers and driver aggregation schemes. Because they're free, the reader can download and test them, decide which meets his/her requirements. But having said that, of the three programs described, I think Gqrx is the best choice for machines running Linux, including small machines like the Raspberry Pi. As long as SDR# remains free, and in particular if it solves its installation problems, it might be the best choice for Windows machines.

Theory: The Frequency Domain

Let's take a closer look at the mathematical techniques behind SDR and virtual radios. To me personally, learning why something works is at least as interesting as knowing that it works.

Notice about Figure 1 that the horizontal scale has units of frequency, not time. The original signals are obviously distributed across time (the so-called "time domain"), but in a virtual radio we often see them as a spectrum (the "frequency domain"). This results from a conversion process called a Fourier transform, an ingenious mathematical way to convert signals from the time domain to the frequency domain. Here's an example:

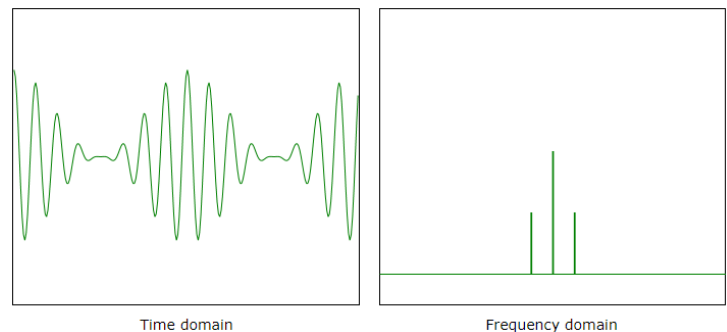


Figure 7: conversion from time to frequency domains [click on the image for animation]

About Figure 7:

- Deselect "AM" (amplitude modulation) so a simple carrier wave is generated. Under these

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circumstances the resulting spectrum consists of one spectral line. This is equivalent to a single pure musical note.

- Increase the setting of the noise level slider and notice that one can still make out the frequency-domain spectral lines at the highest setting, even though the time-domain display has become unreadable. This is one of the many advantages of spectrum analysis – it reveals features that are lost in a time-domain display.
- The human ear is also a spectrum analyzer – like this example, it can pick out signals in the presence of high noise levels, and it can distinguish between frequencies with high precision.
- Deselect "AM" and select "FM" (frequency modulation). Notice that the FM spectrum is much more complex than the AM spectrum. There are many complex kinds of radio signals, but FM is high on the list of complexity.
- When both AM and FM modulation are deselected, the result is a continuous wave (CW). This simple waveform is sometimes used to send Morse Code dots and dashes, a robust method that remains the best choice when high noise levels or poor reception conditions prevent other methods from working.

The display in Figure 7 is generated by an algorithm called the [Fast Fourier Transform](#) (FFT), a method first conceived by mathematician Carl Friedrich Gauss, who in 1805 used it to compute the orbits of asteroids Pallas and Juno based on sparse observational data. The FFT was first used to avoid enormous amounts of tedious hand calculation, but as a computer algorithm it serves to make spectrum analysis lightning fast. Present-day virtual radios use the FFT to perform their spectral analyses.

It's important to understand about the Fourier Transform that it's bidirectional – one can convert from the time domain to the frequency domain and the reverse as well. This means we can design an impossibly complex waveform by placing desired spectral lines into an array meant to represent frequencies, converting the array from the frequency domain to the time domain, then perhaps use the resulting waveform to generate a radio signal with unique properties.

I have omitted the math explanations, however they may be found on the author's website:

https://arachnoid.com/software_defined_radios/

~ Paul Lutus KE7ZZ

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Raspberry Pi as SDR?

In the first of a three-part look at some ways to use a Raspberry Pi for amateur radio purposes, Pete M0PSX looks at setting up an RTL SDR dongle on a Raspberry Pi 3

This is something I've wanted to try for a while - using my \$12 Realtek RTL dongle with a Raspberry Pi as a cheap software defined radio.

I first experimented with this in 2016, but my original Raspberry Pi was too slow for it to be of any use. I'm trying again, this time with some different SDR software and the much faster Raspberry Pi 3.

Read the full article at

<https://www.essexham.co.uk/news/raspberry-pi-as-an-sdr.html>





Looking Back...

The Rise and Fall of Radio Shack

Like most youthful electronics experimenters, I frequently visited Radio Shack for parts and gadgets, and looked forward to their catalogues. I even purchased two handhelds and a 10m rig there, an HTX-202 [2m], an HTX-404 [70cm], and an HTX-10. Both handhelds are still alive and well although they don't get much use nowadays.—Ed.

The first Radio Shack store came into existence in Boston in 1921. It was established by Theodore and Milton Deutschmann as a retail outlet for amateur or ham radio enthusiasts.

The company was named after the structures aboard ships that held all the radio equipment. Amateur radio was really taking off in the early '20s, and the Deutschmanns were able to tap into this fervor with one retail outlet and eventually a thriving mail-order business. Radio Shack sent out its first catalog in 1939 as it began diversifying into high-fidelity music.

By 1954, Radio Shack started selling its own branded stereo equipment under the name Realist. The company was forced to change the brand name to Realistic after being sued by a company called Stereo Realist, which made stereo cameras - cameras that would allow users to essentially take their own View-Master pictures. In the early 1960s, Radio Shack fell on hard times and careened toward bankruptcy. It was at that point that Charles D. Tandy entered the picture.

From the age of 12, Charles Tandy had worked in his father's leather business. While serving in the US Navy during World War II, he noticed sailors doing needlepoint and knitting as recuperative therapy. Tandy thought the men might prefer working with leather as their medium and established a system of craftwork involving leather for the sailors' recuperation.

After the war, Tandy took this concept, named it Tandycraft and turned it into what would become a major part of his father's business. In 1963, Tandy acquired the ailing Radio Shack for \$300,000, seeing the potential in the company. At the time, Radio Shack consisted of the mail-order business and nine retail stores around Boston.

Tandy shut down the mail-order business, ended credit purchases, slimmed down top

management and streamlined the product line from 40,000 items to 2,500. He used data from mail-order purchases to select markets in which to expand. Managers of the stores were required to take an ownership stake in their location as incentive to remain profitable. Radio Shack grew quickly with Tandy's hand at the wheel.

At its peak, RadioShack was opening three stores a day. In the 1970s, when CB radios were growing in popularity, customers flocked to RadioShack making it the leading retailer of the devices. But when it looked like the market for CB radios was faltering, RadioShack looked to add new skills to its repertoire. In 1977, the company introduced the TRS-80, one of the first mass-produced personal computers, and initially outsold Apple thanks to its 5,000 company-owned locations and franchisees. RadioShack was prepared to enter the new decade at the forefront of the computer revolution.

In 1993 it seemed as though RadioShack had finally hit its mid-life crisis when it started casting off its computer and circuit board business, and sold off its cellphone manufacturing business. RadioShack started looking for other opportunities to throw itself into. It didn't work. Big box stores like Future Shop and BestBuy has taken the market share. Canadian Radio Shacks closed and some stores reopened as The Source. In the US the brand held on until recently. As of January 2018 the Store Locator on the Radio Shack website listed only "authorized Radio Shack dealers", and all corporate stores had closed.

Read more of this article by Eric Renshaw in the Argus Leader

<https://www.argusleader.com/story/life/2018/02/22/looking-back-radio-shack-soared-several-stores-sioux-falls/355257002/>



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QRT

Jeremy Morse VE7TMY

***FT8 And My Weekend Test Of
The Latest Digital Mode***

I haven't been keeping up with my QST magazine reading but had heard about FT8 when it showed up online at some point in 2017. When my friend Clyde Feero VE7CKF mentioned he had set it up recently I knew it was time for me to try it out too. So this weekend I decided I should spend some time reading about FT8 and see what all the hype is actually about. I watched some YouTube videos and I decided to set it up myself. It was far easier than I thought it would be.

First let me give you an idea of my previous experience with digital modes. I have made less than 100 contacts using PSK31 on Ham Radio Deluxe Digital Master 780. I've used it enough to confirm my abilities and my shack's setup. I have an iCom 7300 with an end fed wire and 20m dipole for antennas. Both of my antennas are very low from to ground at only about 8 feet up. Even with this compromised antenna system, I've made PSK31 contacts as far as South America and Europe.

FT8 is one of the newest digital modes available to amateur radio operators. It is very popular with anyone wanting to make distant contacts using low power or compromised antennas. If you've ever thought about trying a digital mode like JT65 or PSK31 you might just want to try FT8 for yourself.

Right now because FT8 is so NEW there is one main piece of software available called WSJTX, but there will be others.

Compared to the DM780/PSK31 I found WSJTX/FT8 extremely simple only requiring a few things. You need to configure your radio, sound card and enter your callsign/gridsquare. With DM780/PSK31 you need to setup some macros. I setup WSJTX software in as little as 5-10 minutes. If you like me and use Ham Radio Deluxe you can still use it for advanced rig control and use WSJTX for FT8. It has an option to select HRD as your radio. There are also logging abilities supported by WSJTX but I didn't experiment with them yet. LOTW is still being setup to accept FT8 contacts and testers are waiting for N1MM to support FT8 as a mode, but it's only a matter of time.

An FT8 QSO exchange is completely automated by the software. There is an option to perform each step in the QSO exchange manually but when it comes to digital modes there seems to be some desire to have everyone follow a common flow. You probably won't be actually having a conversation with basic FT8 but instead a quick exchange of contact info.

It's important that your computer's clock be accurate because every 15 seconds a cycle completes and a new one begins. If you monitor for awhile you'll notice every 15 seconds call signs will show up. Some of the call signs are people calling CQ and others are those in the middle of their QSO exchanges. I've provided some reference links below and you can setup NTP (Network Time Protocol) to keep your PC clock in sync.

An FT8 QSO exchange is completely automated by the software.

When you respond to CQ you'll be sending your callsign and grid square. So this can be a little confusing at first when you notice the callsigns and other numbers displayed. You only need to double click on a CQ and the software will start transmitting. If the contact responds back to you they will send you your signal report. Once you each have these details your 73's begin and your finished with your QSO.

I made my first FT8 contact with N4CAP Jeff Clouse in Jamestown North Carolina, who was 3857 km away from me using the grid square reference. I was only running 25 watts on 20 meters and I must emphasize that for me to make this contact I just picked his call sign in a list I saw every 15 seconds. I then double clicked his call sign on my mousepad. I did nothing else!! Yes it was just that easy.

You can view a screenshot *[above right]* but the software automatically sent him my callsign and grid square. He then responded to me giving me a -22db signal report. I sent him a -14db signal report for his CQ call. He sent me a roger roger 73 and I returned with a 73. End of call, and he began to call CQ again. All of this took less than 1 minute 15 seconds!!

Call it beginners luck I guess but I tried a second contact and didn't have the same success I had the first time. You can view *[lower right]* where I responded to the CQ of W1JGM but he didn't answer me. Since I was already monitoring his frequency I noticed someone else exchanging with him and the software stopped transmitting automatically. When the exchange was done I only needed to time my 'Enable Tx' again to try a second time. This is where the computer clock and the 15 seconds cycle applies. I needed to transmit during the send period and not after. I had no luck, but again it either means he could not hear me or chose not to respond to my weak signal.

Rx Frequency				
UTC	dB	DT	Freq	Message
200930	-10	0.1	476	- CQ N4CAP FM05
200947	Tx		476	- N4CAP VE7TMY CN89
201000	-14	0.1	476	- VE7TMY N4CAP -22
201015	Tx		476	- N4CAP VE7TMY R-14
201030	-10	0.1	477	- VE7TMY N4CAP RR73
201045	Tx		476	- N4CAP VE7TMY 73
201100	-13	0.1	478	- CQ N4CAP FM05

To get setup for FT8 you'll need to download and install WSJTX software for your computer. Since it is available on Windows, Linux, and Mac I decided to try setting it up on my MacBook. This is my first attempt at using digital modes on my Macbook using Apple's native MacOS, but have previously used Windows on BootCamp for HRD.

Rx Frequency				
UTC	dB	DT	Freq	Message
210945	-6	-1.5	1241	- CQ W1JGM FN31
211003	Tx		1241	- W1JGM VE7TMY CN89
211015	-9	-1.5	1241	- CQ W1JGM FN31
211030	Tx		1241	- W1JGM VE7TMY CN89
211045	-10	-1.5	1241	- WOPEC W1JGM -10
211100	-10	0.2	1242	- W1JGM AG6GL DM04
211115	-10	-1.5	1241	- WOPEC W1JGM RRR
211130	-11	0.2	1241	- W1JGM AG6GL DM04
211145	-11	-1.5	1241	- WOPEC W1JGM 73
211200	-10	0.2	1241	- W1JGM AG6GL DM04
211215	-14	-1.5	1241	- CQ W1JGM FN31
211231	Tx		1241	- W1JGM VE7TMY CN89
211245	-6	-1.5	1241	- CQ W1JGM FN31
211300	Tx		1241	- W1JGM VE7TMY CN89
211315	-9	-1.5	1241	- CQ W1JGM FN31
211330	Tx		1241	- W1JGM VE7TMY CN89
211345	-6	-1.5	1242	- CQ W1JGM FN31
211400	-4	0.2	1241	- W1JGM AG6GL DM04

For me using the iCom 7300 for digital modes is a little easier than some radios because it is essentially seen as a sound card when you plug in via USB to a computer; so I didn't need to use a SignalLink sound card. The WSJTX software lets you pick which audio interfaces you want to use and has a huge selection of predefined radios for CAT control. There is also a "Test CAT" and "Test PTT" feature so you'll at least be able to confirm your radio is connected well.

Some advanced setup steps might be required to ensure your radio is setup for data mode and not SSB. You'll want to confirm your power output is low 25 watts or less to start with and the ALC is

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not overdriving the radio. Your computer will be sending audio to the radio and it may be too strong and overdrive the transmission. The main reason you don't want to overdrive the transmission is to keep your signal clean and not produce splatter.

While I was trying to respond to a few CQ calls that didn't get picked up I did notice my signal was getting out all over the world. Kazuhiko Nishimura JG0CQK located near Japan's Eastern coastline was approximately 7453 km away picked up my attempts at answering other calls in North America. How do I know this? Well the <http://pskreporter.info> site supports FT8 mode and provides me this info along with all the other stations that received my transmissions. This is an excellent tool for proving the low power/efficiency of the FT8 mode at my station without even making a single contact. It also proves the FT8 mode is very popular because so many people are listening and volunteering their signal reports. The reporting feature of WSJTX is turned off by default, but I would encourage everyone to enable it to help others with their reports.

My 25 watt compromised antenna signal also made it to Hawaii, and Bermuda. I covered the East coast of North America, Florida, Southern California and various places in between.

If you're interested in long distant contacts using low power or have a compromised antenna system like I do, the FT8 mode might be for you. It's not really a mode for any kind of ragchew but it is great for very fast QSO exchanges so it will likely be wildly popular for Field Day and contesting.

I found several YouTube videos talking about FT8 and how to setup WSJTX but none were to the point and did not contain the level of detail I wanted to share. Check out the links below and try FT8 yourself. It works extremely well once you get the hang of it.

~ 73, Jeremy VE7TMY

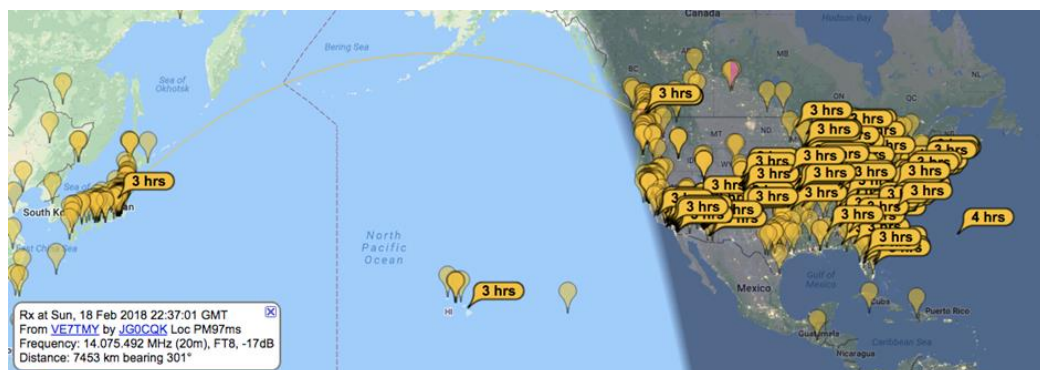
References:

http://www.physics.princeton.edu/pulsar/K1JT/FT8_Operating_Tips.pdf

<http://www.arrl.org/news/ft8-mode-is-latest-bright-shiny-object-in-amateur-radio-digital-world>

<https://physics.princeton.edu/pulsar/k1jt/wsjsx.html>

<https://www.facebook.com/groups/FT8.Digital.Mode/>





It's March

The next Surrey Amateur Radio Club meeting is on Wednesday, March 14 at 7PM. We expect a good turnout as an invitation has been extended beyond our membership. For this reason this **meeting will be held at the LDS Church and Hall at 6270 126 St. Surrey.** Mark this one on your calendar: ARRL Instructor and Legacy Circle Club member Clint Bradford, K6LCS, will be giving his satellite presentation."

Attendees will be shown EVERYTHING needed to work the FM voice ham satellites – with a re-occurring theme of, "Most hams already have most of the necessary equipment..." Attendees can download a four-page tutorial beforehand at: <http://www.work-sat.com> ...and Clint welcomes pre-presentation questions. Call him at 909-999-SATS (909-999-7287), or send email to k6lcs@ham-sat.info

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 or IRLP Node 1737.

	SARC Net 20:00 Hrs
1 st Tuesday Standby	Drew VA7DRW Dixie VA7DIX
2 nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3 rd Tuesday Standby	Rob VE7CZV Vacant
4 th Tuesday Standby	Kapila VE7KGK John VA7XB
5 th Tuesday Standby	Robert VA7FMR Vacant
Want a turn at Net Control? Contact the SARC Net Manager	

Down The Log...

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hr at the PREOC
Emergency Mgmt BC
14292 Green Timbers
Way, Surrey, BC

Weekly Club Breakfast

Saturday between 0800
and 1000 hrs at the
Kalmar Family Restaurant
8076 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 hr local
on 147.360 MHz (+)
Tone=110.9

SEPARS Net

Tuesday at 1930 hr local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m: 147.360MHz+
Tone= 110.9Hz
IRLP node 1736
Echolink node 496228

1.2m: 223.960 Mhz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737



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These are suitable for sewing on a jacket, cap or your jammies, so you can proudly display your support for the club.

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